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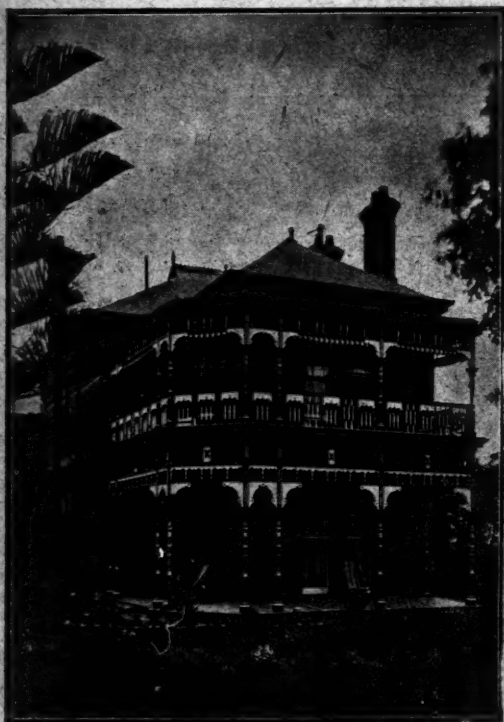
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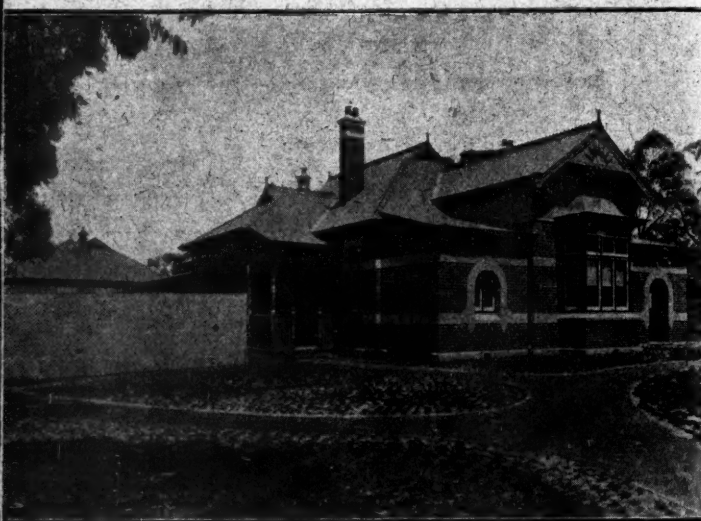
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# THE MEDICAL JOURNAL OF AUSTRALIA.

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No. 22.

## SOME OF THE LIMITATIONS OF MILITARY ORTHOPÆDIC SURGERY.<sup>1</sup>

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In giving the above title to a few remarks this evening I do not wish to appear as an apologist or as a pessimist, but two years' surgical work at No. 4 General Hospital has resulted in a certain amount of disillusionment. After reading the brilliant results of several orthopædic surgeons, and especially the reported results of secondary nerve suturing, one is apt to think that, given the material, one has only to go and do likewise. We are at once confronted with very different conditions from those ordinarily obtaining in civil practice. Sepsis has been the rule, and, if not apparently active, is often only latent and ready to recrudescence on the slightest interference. You can imagine weeks, sometimes months, of patient waiting till septic wounds are healed before you dare attempt operative treatment. And later you can picture the despair of the patient and operator when sepsis spells failure. In the long bones we have found pus cavities three months after the wounds have healed, so that it is no easy matter to lay down definite rules for the length of time to wait before interfering. Another source of trouble is the great scarring about many of the wounds—scars in the skin, fascia and muscle. These conditions not only render an operation more difficult, but obviously interfere with quick, clean repair.

The length of time spent in waiting before operating on nerves is a serious drawback, and in the meantime it is particularly essential to maintain the nutrition of the muscles, to prevent their lengthening and contraction, and also to prevent adhesions of joints and tendons. Unfortunately, in many cases this is very difficult, and consequently subsequent treatment is increased. As this part of the subject encroaches on what other speakers will deal with, let me proceed to give you a brief summary of some of the cases that have come under personal observation.

Out of seven cases of arthroplasty for bony ankylosis of the elbow, the results were good in six. The remaining patient has a flail joint, owing to marked atrophy of the muscles about the elbow. In two cases bone flaps were used; that is, a piece of the separated bone, with periosteal covering, was united by chromic catgut to the cut surface of the humerus. In both instances the bone flap necrosed and had to be removed, but fortunately did not spoil the result. In the other five cases muscle flaps were used.

In nine cases of arthroplasty for bony ankylosis of the fingers a bone flap was used with one exception, and the latter was the only case requiring a second operation. At the second attempt a bone flap gave a movable and useful joint. Most of these patients still require massage and movements.

There was one arthroplasty of the temporo-mandibular joint, an excellent result being obtained with a flap of temporal fascia.

We had three cases of bone-grafting for defects of the mandible, tibia and radius. On only one occasion, when dealing with the radius, was primary union obtained and a successful result.

Adherent scars of skin to muscle limiting movement have done well, sometimes after simple excision, and at other times after interposing a piece of *fascia lata* and fat under the skin. The *fascia lata* has a great capacity for resisting sepsis, and remained *in situ*, even when the wound suppurated. One of the best illustrations of this sepsis-resisting power was in the case of an old urethral fistula. After five failures at home and abroad to close it, healing readily took place when a piece of *fascia lata* was stitched over the opening in the urethra and the skin sutured. *Fascia lata* was also very useful for repairing a gap of 7.5 centimetres in a flexor tendon.

In operating on nerves for paralysis, the results were brilliant when the disablement was due to the pressure of a bullet and the latter was removed. Movements which had been absent for months, could be readily, but somewhat inco-ordinately, performed on the day after operation. Results were equally good, but not so immediate, after freeing nerves from the pressure of scars or callus. In all cases where the nerve was found to be divided and the ends separated by scar tissue or joined in bulbous union, we freshened the ends and sutured them. There were seventeen operations of secondary nerve suturing; three of the great sciatic and four of the external popliteal, three of the musculo-spiral, five of the ulnar and two of the median nerve. At all times it was possible to approximate the freshened ends with chromic catgut without undue stretching, and only once did suppuration occur. Almost always the site of union was encased in a piece of fat. The limb was kept flexed for at least three weeks, and the paralysed muscles kept permanently shortened by suitable splints. The first operation was performed two years ago, and the last three months since. We have found an improved sensibility to hard pressure in some of the patients, but in no case has there been an appreciable return of muscular power. The chief causes of failure are, in my opinion: (1) The long interval between the dates of injury and operation, and (2) the difficulty of obtaining perfect apposition, especially in the case of the smaller nerves. If the general result is to be failure to restore muscular function, we must admit the want of success, and resort to tendon transplantation.

<sup>1</sup> Read at a Meeting of the New South Wales Branch of the British Medical Association on October 26, 1917.

RE-ESTABLISHMENT OF THE CRIPPLED.<sup>1</sup>

By R. E. Wade, M.B., Ch.M., Syd.,  
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The term orthopædic surgery, derived from the Greek words *orthos*—straight, *paîs*—child, signifying the art of making the child grow up straight, connotes various forms of treatment adopted for that purpose, and it has been found necessary to employ many of these methods in the process of restoring the maimed soldier to working life, both in the prevention and cure of deformities arising during the time of repair of his wounds.

Thus orthopædic surgery has come into its own as regards the wounded soldier, and its rôle may be briefly described as the art of so restoring the maimed soldier's muscular power and balance that he may again take his place as a useful, wage-earning citizen.

That it has come into such prominence is due to the fact that such a large proportion of the wounded have, during their period of convalescence from the acute traumatism (generally complicated by sepsis), developed some disability of their limbs, be it either by long-continued disuse of the affected part only, or by injuries to bones, muscles, joints, or nerves, but with the result that the affected limb or limbs are unable to carry out their normal functions.

Happily, a large proportion of these men will be able, with suitably-directed treatment, to overcome the disability and be discharged from the military fit to earn a living wage, either in their old or some allied occupation, or as a slow worker, whose diminished earning power will be sufficiently added to by his pension to bring it up to a living wage.

In the men who return here from the scene of war, we get a condition seen so seldom in civil life that they form quite a class of their own, in that the effects left by the injury are of such a severe, disabling nature. This excessive disablement is due to the long-continued sepsis that they practically all have been subjected to.

The results of this prolonged period of healing is that muscles waste and joints stiffen to an extraordinary degree through mere disuse, and with the stiffening of the joints deformities often arise that are quite unavoidable, and that will only lend themselves to treatment after the wound has healed.

We find many of these men with a wound of a limb in whom the whole limb has more or less lost all power of movement, the joints, even remote from the wound, are stiffened, and for the time being ankylosed by alterations in the extra-articular soft tissues; the muscles are unable to contract, and there is inability to send a nerve impulse down along the ordinary paths. This is due to disuse; the neuro-muscular system has been allowed to remain so long inactive that the transmission of motor impulses has to be learned afresh. This condition is due to prolonged immobilization, either by splints or as a result of postural conditions. As an example, it is not uncommon to

see an arm with a wound at any point of it, be it of the upper arm, the forearm or the hand, without any trauma of the nerves, where the whole arm is unable to record a single muscular movement, the fingers are stiffened and inactive, and the wrist, elbow, and even the shoulder, may be incapable of any active muscular movement.

This, of course, is the extreme grade, and it is more common to see only some of the joints affected by this disuse dystrophy. Still, in practically all there are some affections of the muscles and joints remote from the injury.

Then, again, we see actual deformities, due either to splinting or to the limb being held in abnormal positions, either to relieve pain or for protection. These deformities are due to the shortening up of certain groups of muscles, with overstretching of their antagonists; thus we may get contractures of the biceps group of the arm where the arm has been on an internal angular splint or in a sling, flexion of the knee, with contractures of the hamstrings where the limb has lain for long in a flexed position on a pillow, or a *talipes equinus* from shortening of the *tendo Achillis* as a purely postural condition.

These conditions may in many cases be relieved during the acuter stages by alternating the angles of the splints used, or allowing frequent active movements of the affected joints, while the site of injury is being properly supported, or by the use of splints and appliances that will obviate the postural effects of gravity, as in the cases where there is either wrist- or foot-drop, without injury of the musculo-spiral or peroneal nerves, it being a pure disuse condition plus gravity.

Cases where there has been contusion of the nerve or where re-suturing has been done, must be treated with due precautions to relax the muscles supplied by the affected nerve, for it is found that a paralysed muscle will never recover unless it is held in a relaxed position and allowed to take up its slack. The joints in any wounded limb must be looked to from time to time, and as far as possible active and passive movements given, to prevent stiffness arising from the immobilization. Should the joints be injured and ankylosis inevitable, then the splints should be so adapted that the joint will become fixed in the most useful position for later work; an obvious truism, unfortunately but seldom carried out. The elbow should be fixed at a right angle, midway between supination and pronation if the work is to be clerical, at an angle of 110° if manual labour is to be adopted; the shoulder to be ankylosed at an angle of about 60°, the wrist in hyper-extension, and so on.

As to actual operative measures to be adopted in these war injuries to correct deformity, I do not want to spend time to-night beyond saying that, owing to the sepsis that has been present, the chance of successful operative procedures on bones and joints is very much more circumscribed than in the case of similar deformities occurring in civil life, especially in the young. Restoration of function, then, is the chief aim in treatment of these men, with a view to their restoration to a useful civil life, and this is

<sup>1</sup> Read at a Meeting of the New South Wales Branch of the British Medical Association on October 20, 1917.



sought by the installation of special departments in general hospitals, or in special orthopaedic hospitals. In France, centres of physio-therapy, as they are called, are established, and perhaps the best term for these departments is that used in the United States, *viz.*, reconstruction hospitals, of which they are establishing in advance a large number.

The main points of such a department are, first, the massage department, with gymnasium and electrical department, a department of mechano-therapy, and finally the curative workshops.

The massage staff should be under skilled medical supervision, the medical man should prescribe the work for each patient; the massage staff should be well educated in anatomy and physiology, and capable of initiating the neuro-muscular re-education, and are not to be mere rubbers and givers of passive movement. Here one may say that the whole process of recovery will be made by re-education of the muscular movements, and that the mobilization of the joints will be gained by active muscular movements, and that passive movements, unless of a very small range, are contra-indicated. Hence it is essential that the staff should be well trained and that the mere rubber should have no place on such an establishment.

The usual equipment of hot air baths will be used, but perhaps of more use are the whirlpool and douche baths. The whirlpool bath is one where water is used at a high temperature, and where a rapid, rotatory movement is given to it. This is imparted either by compressed air, strong currents of hot water, or steam, or an electrically driven propeller. The temperature may range from 40° to 49° C., and it is found of much use in relieving pain and in softening contracted tissues.

Contrast hot and cold douche baths, either at high or low pressure, play their part in improving the circulation and the tone of the affected part.

Pure massage or rubbing is, of course, made use of, but not as the whole treatment.

The ordinary electrical measures of galvanic and faradic stimulation are used, where indicated; ionization is found of use in some cases of relieving pain, softening scars and the treatment of chronic ulcers.

The Bristow faradic current, though I have had no experience in its use, seems to have advantages not possessed by the ordinary coils, in that it eliminates the painful skin sensation and allows one to get a current of whatever strength we wish; so, too, the Lewis Jones condenser would seem an improvement in muscle testing. In cases of neurasthenic paresis of muscle, the high frequency current is frequently of great service, perhaps as much as anything on account of its mental effect.

In the department of mechano-therapy, instruments either of the Zander or similar types are used; the principle of these is that each instrument will control either one joint alone or one group of muscles about a joint. It can be set for all ranges of movement of the joint, and with a variable system of weights. These are used after the massage staff has taught the patient to initiate his normal movements, and are of service in increasing the range and strength of the

movements of any joint. All these methods have their distinct sphere of usefulness marred, however, by the fact that in such a department the time of treatment each day must necessarily be limited, and that for the remainder of the day the patient will be under no stimulus to exercise his affected muscles and joints, consequently the period under treatment is unduly prolonged. The remedy for this, however, has been found in the addition of what are called "curative workshops" to the department of treatment. In these the men are kept for the working day or as long as their physical capacity allows, actually at work at some occupation that will be reproductive, will keep their muscles at work for a prolonged period, and so accelerate their cure, and at the same time, by keeping the patient's interest awake, will enable him to forget his disability, perhaps the most important factor of all in his cure.

The classes of work found of most service in these workshops are carpentry, French polishing, bootmaking and leather work, plumbing and gas-fitting, and the earlier stages of a fitter's work, *viz.*, chipping and filing.

In such workshops the work will not be allotted haphazard, but under medical control, and will be set according to the disability, and will first of all exercise the affected muscles, while in addition the elements of some new trade can be taught, if the disability is such that the patient's old one cannot be again undertaken.

It seems to me that these workshops will have a most important bearing on the future of those with amputated arms, by giving them a training with dummy arms before their discharge, when they can be taught what muscular possibilities their stumps possess. Unfortunately, it usually comes as a shock to the man with an amputated arm to find that the artificial limb is only a lump of wood with a few mechanical movements, and many of them lose heart and soon relegate their new arm to the scrap-heap. If, however, these men had a good preliminary training, they would be induced to persevere, and be able to return to civil life with fair earning powers.

#### THE NEURO-MUSCULAR RE-EDUCATION OF THE SOLDIER.<sup>1</sup>

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##### The Normal Neuro-muscular Equipment.

Every human individual commences life with physical characteristics that are inadequate to deal with the existing environment. There are present certain instincts or specific psycho-physical tendencies which respond to appropriate sensory stimuli and which are capable of maintaining life during the unfolding or developmental process. But between this period and the adult state a series of adaptive changes occur which are represented anatomically as changes in the neuro-muscular organization. The

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ability to perform movements is a concomitant of the prenatal development of the reflex arcs. The sensory impressions which give rise to the impulses originating the first movement, may affect not only the lower motor centres but, with the development of the intracerebral tracts, the higher motor centres also.

It is conceivable and highly probable that the original movements emanating from the sensori-motor cortex are really reflexes of a highly organized type. But there is this essential difference between the impulses affecting the lower reflex arcs and those reaching the sensori-motor cortex. The latter give rise to sensations which in time become related to consciousness, and the resulting movement can be reproduced by volition as long as sensory representation remains. The movement itself gives rise to a series of impulses which affect the central nervous system and render more definite and more complete the control of the muscle groups or individual muscles producing the movement. The human infant has, at birth, a neuromuscular organization capable of performing certain instinctive, purposeful movements, but the mass of the early movements are purposeless when considered as a reflection of a psychic state. Physiologically, however, these lay the foundations of more accurate movements. The process is a progression from purposeless co-ordinations to the accurate control of muscle groups, and finally to purposeful co-ordination. Adults have, as a rule, accurate control of muscle groups, and are capable of forming endless combinations of these groups. Although serving no useful purpose in ordinary normal life, the control of individual muscles is demonstrable and in some instances is used in treatment.

#### The Neuro-Muscular Lesions of the Soldier.

(1) The pathological conditions affecting the neuro-muscular organizations of the soldier may be psychic. As a result of shell shock or other nervous strain, the patient's intelligence is unable to recognize the sensations associated with a certain group of muscles. The stored sensations remain subliminal, and although the anatomical mechanism for movement remains intact, the patient cannot consciously carry out motor ideas. Again, on the psychic plane, there may be obsessions regarding movement in association with a definite organic lesion. A bullet wound through the shoulder region without affecting in any way the brachial plexus, may lead to a total loss of function of the upper limb; or a wound in a part far removed from the lower limb may lead to incorrect co-ordination in walking. The type of paralysis varies from the apparently flaccid variety, in which the patient disclaims any knowledge of movement, to the hypertonic pseudo-spastic variety, in which every muscle does its best with resulting chaos.

(2) The pathological process may be anatomical.

- (i.) The central nervous system. Gunshot wounds of the cerebral cortex and spinal cord may give rise to spastic hemiplegia or paraplegia, such as is seen in civil practice.
- (ii.) The commonest seat of change due to disease is the peripheral nervous system. The conduction of mixed nerves may be blocked by trauma leading to division, laceration or

concussion. A similar condition may be due to involvement in scar tissue or in a neuritic process.

- (iii.) The muscle tissue may be the seat of change from involvement in a septic process or almost as commonly from an ischemia, resulting from severance or occlusion of arteries.
- (iv.) Arthritic conditions, such as the ankylosis of adjacent joint, may lead to a severe type of paresis.

#### The Problem.

Whatever be the cause, and providing anatomical defects have been removed, the problem is the same, namely, the restoration of conscious control over groups and co-ordinations. The degree of control present in a particular case and the type of paresis determine the treatment. When the paralysis is absolute and is accompanied by a depressed state of nutrition of the muscles, we have to consider the initiation of a conscious movement. The problem is, on the one hand, mechanical, and on the other, psychophysical. From a mechanical point of view, we must discover how to reduce to a minimum the work demanded of a muscle. Factors such as gravity, friction and the division of power by the alteration of the direction of the pull of a tendon, must be eliminated. The muscle attachments are placed in the closest proximity or in a position which represents the position of parts when the muscle has performed its complete function. In the event of a contraction, this means that the only work the muscle is called on to do is that of supporting its own bulk, or in other words, of rendering itself taut between its attachments. We cannot conceive of anything less exacting on a muscle group. It is an ideal minimum movement, and forms the basis of exercise of function in all cases of severe paresis.

On the psycho-physical side the problem is more difficult. When there is inability to initiate a movement, we have to restore again the patient's acquaintance with his muscle groups. In this we have two allies: reflex action and memory. The early process of physical education goes from sensory impressions to motor impulses. The process of re-education must follow the same order. It is significant that the sensory paths are anatomically prepared for action before the motor tracts, and in regeneration the sensation returns before movement. From a psychological point of view an individual who cannot recognize the position of his limb, is unlikely to be able to move it to another position. From an experimental point of view Sherrington's researches have placed beyond doubt the dependence of movement on sensation. The success attending recent nerve suturing may be accounted for by the improvement in after treatment which keeps up to some extent the nutrition, and, when anatomical union is complete, supplies the central nervous system with the necessary impulses for the completion of a reflex movement. Such procedures as massage giving rise to ordinary sensory impulses; hot and cold douching acting both on the involuntary muscles of the blood vessels, and by supplying the cord with thermal sensations, and passive



movements of joints may be quoted as examples. The employment of electricity in connexion with the treatment of organic paralysis is empiricism of very questionable value. The contraction with a constant current is only a twitch and would not lead to sensory impulses of appreciable duration or intensity. The interrupted current has no obvious effect on a paralysed muscle. If the motor nerve is capable of conducting impulses, the muscle is much more likely to respond to normal volition than to artificial stimulation. If the nerve cannot conduct normal impulses, it is hard to believe that electrical stimulation will be successful in initiating a conscious movement. The sensations associated with the use of an electrical current have no particular characteristics to recommend them to a special place in treatment.

In the treatment of psychic or functional types of paralysis the faradic current has a definite place, which will be defined later. Besides the effect produced on the nervous system, the previous physical education of the patient has a psychic side, represented by the memory of movements. This enables the individual to repeat the performance of an acquired conscious movement. The training of athletes exemplifies this fact. The repeated and studied performance of certain movements renders the muscle groups more amenable to conscious control and much more powerful, not because of an increase in bulk, but of a closer association with the psychic processes initiating the movement.

In the case of the paralysed soldier, we rely on previous sense impressions; a combination of memory and minimum positions of muscle groups is, at present, the most effective procedure. To give an example of this method, a patient with paralysis of the deltoid is placed with the arm abducted and supported in this position. He is instructed to close his eyes and imagine what used to occur when he raised his elbow to the abducted position. Then he is told to make an effort to imitate the performance. This sets the nervous mechanism of movement into activity, and if the muscle is capable of response, the result is a weak tetanus of short duration. Innervation probably has a beneficial effect, even if the result is not an evident movement and the practice is one which, from the results obtained, can be highly recommended.

In the case of lesions due to some psychic change, and where the muscles are electrically active, the use of the interrupted current is of great value. It is not applied indiscriminately and continuously, but the active electrode is fitted with an interrupter and placed over the group undergoing treatment. The patient is instructed to move the group, while the attendant sees that a contraction does occur at the same instant by releasing the interrupter of the current. This relates the sensory impressions of the resulting movement to the effort of the patient.

By the machine invented by Captain W. Rowley Bristow, R.A.M.C., the painful stimuli of the interrupted current are said to be eliminated to a great extent by reducing the voltage. The current is, however, faradic in quality, and as such affects a muscle through its motor nerve. Bristow says he is able to obtain contractions in wasted muscles which the patient is unable to control, but this can hardly

be accepted without comment, since voluntary power usually returns before electro-excitability. We can understand how a contraction could precede voluntary control in a functional case, though in some of these it is a doubtful advantage to have a painless treatment. Electricity itself does not mysteriously restore the power of muscles. It is the fact of contraction occurring and setting the sensory stimuli into operation that determines its value.

In the functional types of paralysis suggestion is a very useful adjunct to physical treatment. The use of high-frequency currents, in which the patient can see the violet rays in operation, the mystery of the battery and the personality of the masseuse are all powerful factors in arousing the patient's imagination and desire for recovery.

The process of re-education is at first tedious and wearying to both patient and masseuse. There is, perhaps, nothing so tiring, mentally, as thinking, as it were, up against dead ends or stated psychologically, without a definite effective side to the process. This must be recognized by the masseuse, so as not to confuse or tire the patient unnecessarily. An excess of effort in this connexion is detrimental, and would deplete the nerve cells just as quickly as any other mental strain. A useful procedure is to intersperse the patient's efforts with periods of kneading of the muscle groups. The impossibility of dealing with a large number of patients of this type in a limited time must be obvious, especially when, in the majority, the lesions are multiple and complicated by other disabilities, such as stiff joints.

Splinting, to maintain the position of rest in parietic muscles, though not dealt with in this paper, is considered an essential factor in treatment.

#### The Treatment of Paresis.

When the patient's control over groups has been established, two factors are necessary to restore the muscles to functional activity. These are normal nutrition and the perfection of control. Nutrition may be beneficially influenced by such procedures as massage, whirlpool baths and hot and cold douching, but by far the most important therapeutic agent is conscious movement. Massage and particularly the degenerated representative of the art known as rubbing have been credited with a much exaggerated importance in this connexion. Scientific massage, skilfully performed, is the most useful adjunct, when care is taken to knead thoroughly the muscle tissue in correct anatomical grouping, particularly as a preparation for movements and to remove the products of fatigue after exercise. The perfection of control is accomplished by appropriate movements. There is a considerable gap between the initiation of a conscious movement and the ability to perform a normal action. This has to be bridged by considering the mechanics of movement. For example, the dorsi-flexors of the wrist perform dorsi-flexion, whether the hand is prone or supine, but in the former the muscular energy required is a maximum, in the latter a minimum. We have to arrange a progression of difficulty by an alteration in the arrangements of anatomical parts. The elimination of friction by the use of polished wood surfaces or cardboard covered with boracic powder,

of gravity by throwing the weight on to the lateral ligaments of joints, *et cetera*, of mechanical interference with the line of action of tendons by putting all except the terminal joint into a straight line, must be attended to. The choice of movements of a normal type is one which exercises most writers on muscle injuries. The persistence with which the Swedish system of gymnastics, with its cumbrous nomenclature and its indefinite movements, is used is an astounding thing. Why should we depart from accepted anatomical nomenclature in describing movements or, from the study of ordinary normal anatomy in constructing exercises? The approximation of muscle attachments represents the natural exercise of muscle group, and with a working knowledge of anatomy the surgeon or masseur is in a position to meet any emergency. In addition to that, the establishment of control proceeds, as in ordinary education, from the sensory impression to the motor expression. The maximum and most definite sensory impressions accompany the most complete contraction of muscle groups. The sensory impressions arising from the complete contraction of a muscle group, may be experienced, in the case of the flexors of the fingers, for example, by flexing the forearm on the upper arm, pronating the forearm, flexing the wrist and, while maintaining flexion of the wrist, attempting to flex the fingers. These definite and acute impulses travel by the sensory paths to the cord, the cerebellum and the motor cortex, and at once lay the foundations for an increase in tone, for cerebellar co-ordination, and for the expression of a psychic state. Normal anatomical group movements are the basis of all reconstructive exercise. In the introduction the accurate control of groups was said to be the end result of the normal educative process. It is also the aim of the re-educative process. Combinations and co-ordinations follow easily on this foundation, and in connexion with the soldier, the co-ordinations necessary are those associated with some occupation and do not lie within the scope of this paper.

#### \*The Treatment of Incorrect Co-ordinations.

Incorrect co-ordination means a disproportional and untimely arrangement of muscle groups. The plan adopted is to recognize in what particulars the co-ordination is wrong; to treat each group separately, particularly in the direction of accurate control; to give any subnormal muscles special attention and, finally, to combine again in accurate combination. Psychologically we bring each group from the unconscious into the conscious, renew the patient's acquaintance with his muscles, and then slide them back into the unconscious again. The use of devices, such as rowing machines, is unscientific as a treatment for incorrect co-ordinations, and if the object is to restore power, the patient is far better employed in some useful occupation.

#### The Training of Assistants.

The indispensable assistant in an orthopaedic department is the masseur or masseuse, and it is only with the greatest care that the choice of these assistants should be made. It is commonly thought that anyone with a little training is able to do massage work. They may be able to rub, but that is not massage; they may

be able to drill a squad of soldiers, but that is not re-education. The time has come, also, when the masseur who heals by gift, should be regarded as a relic of the empiricism of the past. In massage, as in other therapeutics, we should strive to be rational and treatment should be based on sound scientific principles. The modern assistant, as far as orthopaedic work is concerned, should be highly trained in normal anatomy, not merely from text-book descriptions, but from actual dissections. Besides proficiency in manipulations, a knowledge of the therapeutic application of electricity, of the essential difference and physiological effects of the forms of current used, is imperative. From what I have said in the preceding pages, I hope it is clear that a knowledge of the principles and physiology, and it might even be suggested the psychology of movement is essential. On the general educational side mental qualities, capable of making accurate observations and comprehending the end results of treatment, are required and a temperament that can be controlled and be amenable to discipline, similar to that of the soldier whom he or she treats.

#### STIFF KNEE.<sup>1</sup>

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So many patients in military practice suffer from more or less severely ankylosed knees that it seems worth while to write briefly on that disorder to-night, especially as it is also commonly found in civil practice. The great difference between military and civil practice in that respect, however, is that in the former instance the ankylosis is almost invariably the result of traumatism, while in the latter other conditions have frequently to be taken into account.

The old division of ankylosis into fibrous and bony is, of course, still as true as that two and two make four; but it is not the most important classification in military work. Here we must endeavour to ascertain whether the ankylosis is the result of simple traumatic synovitis, as after a sprain, fracture, or internal derangement; or whether it follows after a septic arthritis, as from a gunshot wound. On this distinction may depend the treatment and prognosis of the case.

We may dismiss bony ankylosis by saying that if it is truly firm and bony, if it gives no pain, and if the knee is in good position, the patient is a very lucky fellow, and the surgeon should let well alone, merely strengthening the muscles by exercise, massage, and electricity.

It is fibrous ankylosis with which we really have to deal. There has been an outpouring of lymph between the cartilaginous coverings of the bones; this lymph has become organized, and has left adhesions which may be slight and fragile, or may vary through cords and bands until the whole knee has become as it were filled with woody fibrous tissue. *Pari passu* with the increase of the fibrous tissue so does the cartilage become eaten away; the ends of the bones are rarefied, so that the fibrous tissue is stronger than the bone;

<sup>1</sup> Read at a Meeting of the New South Wales Branch of the British Medical Association on October 26, 1917.



the muscles atrophy from disuse; and there is considerable pain. The amount of movement in the knee may be comparatively little limited, or there may be so little flexion that it can only be elicited under an anæsthetic. There is naturally a good deal of crippling, varying with the amount of pain and limitation of movement; and much of the disability may be due to sheer weakness of the muscles.

It is of prime importance to make sure that the joint is not affected by tubercle. Undoubtedly the tubercle bacillus may settle down in a knee the subject of any traumatism, but in my experience this is rare; I never remember to have seen it occur in any of the hundreds of stiff knees which have come under my care. But it is quite essential to make sure on this point before undertaking the treatment. X-rays will show any bony lesion due to tubercle; but it must be remembered that such lesions may not occur early in the disease. Tubercular infiltration of the surrounding tissues, large white swelling, is quite characteristic, and can be readily detected by an experienced touch; and tuberculosis of the knee causes a much more rapid and extensive atrophy of the muscles of both thigh and calf than is caused by simple arthritis. In tubercle, also, the adductors are more likely to be atrophied than in ordinary ankylosis. A typically tubercular knee, then, will appear large and white, and a centimetre or more larger than its fellow; there will be great atrophy of the thigh, especially on the inner side; the knee will feel soft, doughy, and boggy to palpation, but will contain no fluid. A knee, the subject of fibrous ankylosis, may be little larger than normal; there are two and a half centimetres of atrophy of the thigh half-way up the femur, and the atrophy is mainly on the front of the limb. In cases of doubt, the matter can be settled by an injection of tuberculin.

But other organisms than the tubercle bacillus may be lying latent, ready to flame into mischief should an unwary surgeon roughly move the knee. There may be the gonococcus; much more often the ordinary organisms of septic inflammation are present, should the knee have been ankylosed by past arthritis. It is in this respect that such knees differ from those which have merely been the subject of aseptic traumatism; the latter remain free from germs, and the results of forcible movements are less likely to show severe reaction. Furthermore, the ankylosis is less complete; the amount of fibrous tissue is smaller, and the ends of the bones are less likely to be porous.

Another point to be borne in mind is that the muscles acting on the joint are frequently adherent to the bones or other structures, and that, should the knee be in a position of flexion, all the nerves and vessels passing the knee may have become shortened, and will therefore resist extension, even to the point of rupture.

**Treatment.**—This consists in straightening the limb, securing movement of the knee, and strengthening the muscles.

A simple case of ankylosis following on aseptic traumatism presents comparatively little difficulty.

The leg can be put on extension, a weight of from five kilograms upwards being employed. At the same time massage is used, in order to relieve the pain and swelling which often appear. When the limb is fairly straight the patient is encouraged to walk about, and the muscles are vigorously massaged. This, however, will not restore the muscles to their original power so quickly as may be, and Bristow has devised a method by means of which strong faradic electric currents may be applied to them without causing the patient severe pain. The muscles, or any individual muscle that needs stimulating, are pinched up between the two wetted electrodes, and an interrupted current turned on through a special coil, at first weakly, and then more strongly, until the muscle contracts. The current is again weakened, and the muscle relaxed. This rhythmical stimulation and relaxation are continued for a quarter of an hour or more daily, until the muscles have quite recovered their tone, the patient meanwhile being encouraged to walk and exercise the limb. By this apparatus the extensor muscles of the thigh can be made to straighten the knee completely as the patient sits in a chair, and the improvement is extremely rapid. We are not yet in possession of Bristow's coil, but have wired to London for it, and no doubt it will prove as successful here as I have seen it prove at Hammersmith.

Should moderate extension not succeed in straightening the limb, or should little movement be present from the first in an already straight knee, there is no harm in moving it under an anæsthetic as often as may be necessary, encouraging the patient to use the knee afterwards and making every effort to strengthen the muscles by electricity and massage.

But if the condition has followed on a septic knee, much greater caution must be employed. In these cases the whole articular surfaces of the femur and tibia are often entirely destroyed, and it is impossible that a perfect return to normal shall be obtained by ordinary methods, as shown above; and forcible movements will only result in tearing the fibrous bands away with pieces of porous bone attached to them, probably setting up once again severe inflammation, if not actual sepsis. These cases are exceedingly difficult to treat successfully. Lexer's plan of removing the knee and inserting in its place an entire knee taken from a corpse is not likely to be frequently performed outside the land of corpse-factories.

The method I adopt is to persevere with massage, active—not passive—movement, and electricity, until either improvement occurs or it becomes evident that no such result is to be looked for. When X-rays show destruction of the articular surfaces these methods are not likely to succeed, and the only question that remains is whether to try Murphy's arthroplasty, or to resort at once to excision of the knee with a stiff leg.

I have done Murphy's operation five times, taking a flap of fat and *fascia lata* from the thigh and stitching it between the ends of the bones. It is necessary to put the limb on extension from the first, to avoid too severe pressure on the ill-vitalized flap, and to use massage and electricity. Of these five patients, I know of only one who can walk well; the last I

heard of him he was able to walk three or four miles. In the last case I did, the patient has much more movement in the knee than before the operation, but she is not a great walker, as she can only manage to hobble about the house with considerable pain. It seems to me that there is not much good in having a movable knee if you cannot walk with it; but perhaps six months hence there may be a different story to tell. The other three all came to excision; were necessarily left with permanently ankylosed knees, but can walk for miles and have no pain or discomfort of any kind beyond the inconvenience that naturally results from inability to flex the knee.

On the whole, I should put the matter before the patient; let him decide whether it is worth his while to undergo the pain and suffering of Murphy's operation for a possibly perfect result; or whether he prefers to get the whole thing over and be left with a stiff knee and a strong leg. In my view, once the knee has come to a stage really needing Murphy's operation, the operation of choice is excision; but I am quite prepared to try Murphy's operation again if the patient should so desire.

I have purposely left out the large class of contracted and hysterical knees, which can be recognized by their immediate relaxation under an anæsthetic, because these are probably more medical than surgical in nature.

## Reviews.

### SURGERY.

The 1917 Volume on General Surgery of the Practical Medicine Series,<sup>1</sup> has this year a new editor, Dr. A. J. Ochsner, in the room of the late Dr. J. B. Murphy, who stamped his individuality on previous volumes. Dr. Ochsner has adopted the same method of personal editorship that distinguished the volumes issued under Dr. Murphy. There is, throughout, a running personal commentary or appraisal of all the material reviews in the book. This fulfils a sorely felt need, and makes for great economy of time and effort in the reader who is trying to separate the all too abundant chaff from the grain of sense and truth that may lie hidden in our periodical literature. Unfortunately the journals are so choked up with worthless stuff that few have either the time or the patience to take serious note of it. We therefore think that the method pursued by this little book (for it is not a large one) is a most valuable one, provided the commentator be an experienced, critical, and capable man. Dr. Murphy excelled in it, and Dr. Ochsner has here followed him very successfully.

The volume opens with a panegyric on the late editor by Dr. Ochsner. Dr. Murphy was a teacher of quite remarkable individuality and attainments, and made a strong impress on the surgical practice of the day. Surgeons are not a little indebted to Dr. Murphy for many things; for instance, to his very plain-spoken insistence on regarding every case of appendicitis as serious, and demanding immediate and early operation.

We need not enter into great detail about the contents of the volume generally. A very important share is usefully taken up by the surgery of the colon and rectum. There is a good deal of space devoted to military surgery. Altogether, we consider the book well worth having, and it has the great virtue of not being too large.

<sup>1</sup> The Practical Medicine Series, under the general editorial charge of Charles L. Mix, A.M., M.D. Volume II, General Surgery, edited by Albert J. Ochsner, M.D., F.R.M.S., LL.D., F.A.C.S., 1917 series. Chicago: The Year Book Publishers. Melbourne: Stirling & Co. Crown 8vo., pp. 608. Illustrated. Price, 8s. 6d.

## THE CAUSATION OF SEX.

It appears to be difficult for some people to distinguish between logical deduction and speculative reasoning. Some persons find this distinction impossible. A scientifically trained observer avoids the enunciation of any theory or deduction until he has marshalled his facts and determined the value of his evidence. Many speculators have endeavoured to explain what determines the sex of an individual. Many of these theories are uninteresting theories, based on guesswork or superstition. Others are to some extent ingenious, notwithstanding the fact that they are speculative. None are acceptable. Dr. E. Rumley Dawson communicated a theory of the causation of sex in 1900 to the Obstetrical Society of London and failed entirely to convince the members. A few years later he published a book on the theory, and after seventeen years, during which he might have reviewed his evidence, he has made a further attempt to gain acceptance for the theory in the second edition.<sup>1</sup> Briefly told, his theory is that the right ovary of woman contains Graafian follicles with male ova only, while the left ovary contains follicles with female ova. Mere man has nothing to say concerning the sex of his offspring. Moreover, Dr. Dawson imagines that ovulation occurs alternately in the ovaries, and consequently that the sex of the unborn child is dependent on whether the ovum was derived from the right or the left ovary. If a woman has borne a child and is aware of the date of the last menstruation, she can give information to the obstetrician which will enable him to calculate which ovary was ovulating at the time of the establishment of any subsequent pregnancy and therefore to presage the sex of the unborn infant. More than that, he maintains that the obstetrician can advise his patient who desires either a son or a daughter, which intervals between two periods will yield her her desires and which should be avoided for insemination. He repeats many times over that the theory is based on observations and is proved conclusively. The first point may be conceded, namely, that as a rule menstruation corresponds to ovulation and that only one Graafian follicle ripens at a time. The second point on which the theory is based, is not supported by acceptable evidence. It is that in every case in which the condition of the ovaries has been examined, the sex of the foetus has been found to correspond to the site of the *corpus luteum*. A considerable number of instances are quoted in which male children were associated with a *corpus lutea* situated in the right ovary and others in which female infants were associated with a *corpus lutea* in the left ovary. The author admits that cases have been described in which a boy has been born of a woman whose right ovary had previously been removed. He accounts for this by assuming that some right-sided ovarian tissue had been left behind. This explanation is far from convincing. Until he or others can show that a male foetus corresponds to an ovum derived from the right ovary in at least a thousand consecutive cases, the element of accident cannot be excluded and the theory must remain a speculative one. Still more unlikely is that the ovulation takes place alternately on the two sides. The evidence adduced by the author is not worth quoting. It is bad logic and merely an assumption of what he would like to be able to prove. With that, the possibility of prophesying the sex of an unborn infant and the election of a male or a female child by a mother must be regarded as non-existent. Incidentally the author exposes his inability of logical reasoning when dealing with the fact that more males are born than females. The right ovary is larger than the left and contains more Graafian follicles. If the assumption that ovulation takes place alternately were correct, the larger number of contained ova in the right ovary could not exercise any influence. The book is a poor literary production and a still poorer exposition of reasoning.

## AUSTRALIAN ARMY MEDICAL CORPS COMFORTS FUND.

Our total last week stood at £111 12s., and there have been no additions. We are aiming at £150 by Christmas—£38 8s. to be collected in four weeks. Do not disappoint us.

<sup>1</sup> The Causation of Sex in Man. A new theory of sex based on clinical materials, together with chapters in Forecasting or Predicting the sex of the unborn child, and on the determination of production of either sex at will. By E. Rumley Dawson, L.R.C.P., M.R.C.S. Second edition; 1917. London: H. K. Lewis & Co., Ltd. Demy 8vo., pp. 240. Price, 7s. 6d.



## The Medical Journal of Australia.

SATURDAY, DECEMBER 1, 1917.

### Our Disabled Soldiers.

In the second issue of *Recalled to Life* we are told that "developments are taking place rapidly in the case of the care, re-education and return to civil life of the disabled." The War Office in London recognized betimes the urgent necessity of a properly organized scheme for the re-establishment of those who, having faced the enemy's fire, have escaped with their lives, but have suffered injury of a more or less incapacitating nature. The first step in this organization was the institution of a system of military orthopaedics, as a definite and self-contained department. The appointment of Sir Robert Jones as head of this department insured its success from the start. The second and subsequent steps involved the provision of pensions, of industrial training centres and of other means of assistance. The care of the permanently incapacitated men may be regarded as an affiliated, but practically distinct undertaking. While this scheme has been planned with infinite care in Great Britain and carried into effect with equal attention to detail, the same problem has been allowed to find its solution haphazard in Australia. The fact that twelve thousand miles of ocean divides us from the western front should be regarded as an additional reason why nothing should be left to chance. We have recently been told by the authorities of the Base Records office that approximately 20,000 disabled men are at present in England, awaiting to being sent back to Australia. Many wounded men have already returned, and it is equally certain that our men must suffer much yet before the war can be ended. Lord Charnwood, the Editor of *Recalled to Life*, in a most engrossing and important "General Survey" of the position concerning the disabled soldier, points out that of the men discharged from the Navy or Army 3.2% are suffering from injuries to their eyes, 4.9% from injuries to limbs necessitating amputation, 26.9% from injuries to limbs not

calling for amputation, 4.7% from injuries to the head, 0.7% from hernia and 5.3% from miscellaneous wounds and injuries. The foregoing yield a total of 45.3% of wounds and injuries. The remaining 54.7% embrace disablement due to disease. There are about 6% of pulmonary tuberculosis, 5% of rheumatism, 11% of heart disease, nearly 5% of nerve affections, close on 1% of insanity, 2.6% of deafness and just over 1% of epilepsy. It may be assumed for the sake of argument that the nature of the casualties to Australian soldiers has not differed materially from those sustained by the men from Great Britain. According to the latest returns the number of casualties from wounds or gas amounts to 93,325, and consequently we may anticipate that not less than 40,000 men have been or are in need of the best treatment to help them to become useful citizens again. Lord Charnwood emphasizes the fact that much of this work, which falls to the medical profession, is new work, and he insists that it is delicate work which few men can undertake with advantage. Even under the English system, the soldier will not always accommodate himself to the advice of the expert. Lord Charnwood remarks, without unkindness, that it is a very good thing that he will not. He urges the application of all the available skill and knowledge for the benefit of those who have fought and suffered.

In the present issue we publish the opinions expressed by several experienced members of the New South Wales Branch of the British Medical Association on a number of points connected with this subject. A perusal of this highly interesting discussion establishes very clearly the necessity of some definite plan of action, a properly thought out scheme for dealing with disabled men from the time of the receipt of injury, when they are transferred to the clearing station, the base, and the hospital in England, until recovery. This care of them should not suffer when they are placed on a transport to return to their sunny home, nor should there be want of continuity or a beginning all over again when they arrive. Collaboration with the civil organizations and with the medical profession could insure direct continuation of the treatment until the man is fit to be discharged to the body entrusted with his technical or professional re-education. Success must

depend on the ingenuity, clear thinking and organizing capacity of the individual placed at the head of this service. Nothing should be left to chance, and at the same time, the whole responsibility should be imposed on one pair of shoulders. Australia has produced brains equal to this demand. There are several men to whom this duty could be entrusted with safety and with advantage. The military authority should determine to institute a separate orthopaedic branch of the Army Medical Service. The selection of the director of this branch should be referred to a representative committee, in order that no one would have the opportunity of stating that the appointment was influenced by favour or political motives. The director could then work out his scheme and submit it, in the first place, to the committee which recommended his appointment. After approval of the scheme, the appointment and the scheme could receive confirmation from the military authority. There is no doubt but that this procedure would result in a great increase in the value of the work of the military and civil surgeons who deal with returned soldiers, and would enhance the earning capacity of the disabled to a large extent. It is late, but not too late.

#### THE NOTIFICATION OF DIPHTHERIA.

Notification of infective diseases has for its object the check of their spread. Medical practitioners would not be justified in disclosing the information obtained in the course of their practice merely for the purpose of enabling statisticians to compile statistics. It has, however, been determined that the information is so valuable a means of control, that the health authorities should be in its possession in every case. While the practitioner is required to give this information promptly and accurately, the health authority has a responsibility to the public to utilize the information and to endeavour to trace in each case the source of infection and to take all the available means to render this source inactive. Since the law compels medical practitioners to carry out their part in the attempt to control dangerous infectious diseases, it should be equally insistent that the information placed at the disposal of the health authorities shall be utilized completely. Any

health authority that fails to grasp the opportunity of destroying a source of infection or of cutting it off, is neglecting its duty to the public. From the figures which we published last week, together with those for the first quarter of the year, we learn that there is still much—very much—to be done in Australia in the way of combating infective diseases. A careful consideration of the figures concerning diphtheria will reveal that neither the medical practitioners, who have the task of reporting the cases, nor the health authorities, who have the duty of checking the spread, have acquitted themselves in a very creditable manner. During the first half-year 8369 cases of diphtheria were reported in the Commonwealth, and there were no less than 383 deaths from this disease. In order that errors due to small numbers may be reduced as much as possible, it may be advisable to analyse the figures for the two quarters together, rather than separately. The incidence of the disease, as disclosed by the cases notified, was highest in New South Wales where it was 2.08 per 1,000 of population. In Victoria, South Australia, Queensland and Western Australia it was 1.59, 1.55, 1.38 and 1.34 per 1,000 of population respectively. In other words, in the four States the incidence appears to have been almost the same. In Tasmania it was 0.92. During the second quarter it was 0.15 in this State, which is equivalent to a half-yearly incidence rate of 0.3. Before any attempt is made to ascertain from these figures whether it is probable that they represent the actual prevalence of diphtheria in the several States, it may be advisable to review the case mortality figures. These are found to correspond closely in four States, namely, New South Wales, Victoria, Queensland and Western Australia. The figures for the half-year are 4.35%, 4.16%, 4.78% and 4.47% respectively. For the whole Commonwealth the case mortality was 4.69%. It is usually recognized that the case mortality in city hospitals, notwithstanding the special facilities for prompt treatment and the special training of the medical officers in charge, is higher than that in the small towns and country districts. The worst cases are sent to these hospitals and the patients are exposed, prior to admission, to a less favourable environment, as compared with the patients in sparsely populated areas.



From the last annual report of the Queen's Memorial Infectious Diseases Hospital, Fairfield, we learn that the case mortality was 4.79%. It is therefore improbable, if every case were included in the statistics, the mild as well as the severe, that the mortality would exceed 3%. The inference to be drawn from these mortality figures of between 4.16% and 4.78% is that many of the milder cases are not notified. There is evidence that in the Kalgoorlie district of Western Australia, where provision for laboratory diagnosis does not exist, the total number of cases is greater than that reported. This probably applies as well to the other three States. In South Australia the case mortality was 6.74%, while the incidence was supposed to be slightly lower than that obtaining in Victoria. It is unlikely that the disease is markedly more virulent in South Australia than in the other mainland States. On the other hand the policy of excluding from school all children who have been in contact with diphtheria patients, may be responsible for a very large increase in the incidence of the disease. This is all the more probable, since the health authority focusses its attention to the school room and does not exercise any control over "carriers." The excluded children have an ample opportunity of coming into close contact with "carriers" in the streets, in the picture shows and at home. A significant fact is to be found in the report of the Adelaide Children's Hospital. The case mortality of diphtheria was given at 10% in the last annual report. We can only assume that the little ones are sent to hospital late in the course of the disease and that the endeavour to cope with the infection early, by watching for it, is relatively rare. In Tasmania the case mortality works out at 8.64%, while the incidence of notified cases is considerably lower than elsewhere in the Commonwealth. These figures indicate that many cases are not notified at all, and further, that the control has been defective in the past. Until quite recently, no attempt was made to provide facilities for bacteriological diagnosis. The present Chief Health Officer has moved in the right direction in this connexion, and we trust that he will receive the co-operation of the profession in his endeavour to cope with this disease.

#### MENINGOCOCCUS CARRIERS.

It is an easy matter for the politician to devise regulations and to issue orders aiming at the removal of a danger or a nuisance. It is often an entirely different matter to effect the removal. Legislators are apt to regard their work with eminent satisfaction and to assume that the problem is solved, when legal powers are conferred on the health authority to isolate and treat carriers of pathogenic organisms. According to the layman all the medical expert has to do, in order to render these provisions effective, is to apply one of the vaunted remedies and discharge the individual from detention when it has done its work. In the case of epidemic cerebro-spinal meningitis the causal organism is so fragile, so little resistant, that any powerful antiseptic must suffice to render a carrier harmless. Moreover, there is evidence that, even without any treatment, the cocci disappear after a short time. The fallacy of this sort of argument has recently been demonstrated again by Drs. P. Fildes and P. B. Wallis, who have conducted a serious investigation in the Laboratory of the Royal Naval Hospital at Haslar.<sup>1</sup> They were able to show that, although any treatment, or even detention without treatment, resulted in the disappearance of the meningococci from the fauces of carriers, relapses occurred in at least 36%. About one-third of the carriers freed themselves of the meningococci spontaneously. They found that the carrier state could not be said to have been cured until a bacteriological examination had been carried out four times at weekly intervals and a negative result obtained consistently. They applied chloramine-T, acriflavine, boracic acid, carbolic acid, formalin and other antiseptics either by inhalation or by direct application. None of these means possesses the power of curing the carrier state. Their observations show that acriflavine produces a transient inhibition on the bacteria. It therefore appears that the causal bacteria of epidemic cerebro-spinal meningitis, of diphtheria and of enteric fever cannot be removed from the bodies of so-called "carriers" by means of any known antiseptic.

#### BIOLOGICAL PROPERTIES OF COW'S MILK.

The belief that raw foods possess nutritive qualities that are removed by cooking, is widely held at the present time. The presence of raw foods in the diet is thought to be necessary for the assimilation of the constituents of cooked foods by the cells of the animal body. Especial emphasis is laid on the importance of raw foods in promoting the growth of the young. When raw foods are absent from the diet, growth is said to be less rapid than when unheated foods are given. It is sometimes affirmed that growth ceases sooner or later on a diet of heated food, even if an increase in weight is at first observed. In accordance with these views it has been supposed that heated cow's milk is less suitable as a food for infants than raw cow's milk.

<sup>1</sup> The Lancet, October 6, 1917.

When milk is boiled, the various ferments, peroxidase, catalase, reductase, etc., are destroyed, lactalbumin is more or less coagulated and a larger proportion of the phosphate of lime passes into the solid phase. Even at the lower temperatures employed during pasteurization, similar changes are produced in cow's milk. Many investigations have led, however, to the conclusion that the ferments found in milk, are not concerned with the nutrition of the body, that the solubility of the lime salts in the milk does not influence their absorption in the alimentary canal, and that the coagulation of the proteins has only a slight effect on their digestion. As long as it was supposed that the body made use of proteins without breaking these food-stuffs into their constituent amino-acids, the coagulation of proteins by heat appeared likely to diminish their nutritive value.

The question of the nutritive value of an article of food has been altered by the discovery that certain other factors are concerned besides the amounts of the proteins, fats, carbohydrates and salts. These factors are known as the vitamins, food hormones or accessory substances. As their activity can be augmented by certain chemical processes by which increased concentration of material is brought about, they are considered to be chemical substances. In 1911 Stepp observed that mice fed upon foods from which the fats were removed with alcohol and ether, did not long survive. If this fat-free diet was supplemented with a little raw milk the mice lived indefinitely. Boiled milk was also capable of prolonging the life of the mice, though it had to be given in larger amount than the raw milk. Gowland Hopkins found that animals grow freely when fed on starch and on the amino acids derived from the acid hydrolysis of caseinogen, if they are supplied with tryptophane and a small quantity of an alcoholic extract of milk. Hopkins insisted on the necessity of supplying milk as a source of vitamins. Osborne and Mendel were led to recognize two accessory factors in nutrition. These factors are not only required to maintain the body weight but also to promote growth. They also serve as "curative" agents when nutritional disturbance has been produced by feeding with diets deficient in these bodies. One of their accessory factors was present in protein-free milk, a powder prepared by them after separating the caseinogen and lactalbumin. The milk was boiled during its preparation. This powder is a mixture of lactose and inorganic salts, and it contains the water-soluble accessory factor. They found that animals thrived for long periods on rations of caseinogen, starch and lard if a small amount of this protein-free milk powder was added. Ultimately animals ceased to grow on this diet, but a diet on which growth occurred to maturity, could be obtained by substituting butter-fat for lard. The butter-fat was extracted by ether from butter, and was free from nitrogen and phosphorus. It yielded no ash and no compounds soluble in water. McCollum and Davis showed that animals thrived well on diets of caseinogen, dextrin, lactose, and inorganic salts if supplied with an ethereal extract of butter, egg-yolk or cod liver oil. They found that the fat

could be boiled without depriving it of its biological characters. They were inclined to believe that fat-soluble accessories alone are needed for complete nutrition. Drummond showed that the purified lactose contained the water soluble accessory, and McCollum and Davis confirmed this result. It thus seems that two accessory substances are present in milk. One, soluble in water and alcohol, is not destroyed by boiling for six hours at 100° C.. The other, soluble in butter, is not harmed by steaming at 100° C. for two hours. These two substances constitute the vitamins of milk. Recently McCollum and Davis<sup>1</sup> have made a special study of the effect of heat on cow's milk. They find that the biological nutritive qualities of cow's milk are destroyed by one hour's heating at one atmosphere plus pressure. After boiling milk for some hours the accessory body is not diminished in amount. As the accessory substance of wheat embryo is not destroyed by this treatment, they separated the caseinogen and heated the whey to one atmosphere plus pressure. The whey maintained its nutritive characters. McCollum and Davis therefore believe that heating milk to temperatures higher than the boiling point leads to changes in the caseinogen. Possibly some amino-acid, as tryptophane, undergoes decomposition, and the suitability of caseinogen as the sole source of protein is lost.

These investigations show that cow's milk contains the vitamins which regulate the assimilation of other food-stuffs by the cells of the tissues. These accessory substances are not destroyed by boiling the milk, though they are destroyed by prolonged heating at slightly higher temperatures than 100° C., and are readily harmed at 120° C.. In these respects the vitamins of milk resemble those of other foods. Prolonged heating of caseinogen also seems to change its characters. These valuable researches serve to prove that the heating of cow's milk so often needed to ensure sterilization, does not affect the nutritive value of the caseinogen as a source of the necessary amino-acid and of the accessory substances present in the whey and in the fat.

#### THE PEPTONE TREATMENT OF SEPTICÆMIA.

The war has set many men thinking. It has sharpened the wits of experimenters and has been instrumental in bringing to light various means of combating severe local and general infections. Many observers claim that the means applied for dealing with infected wounds have proved a triumph in war surgery. Loud enthusiasm has greeted the various discoveries of sovereign remedies; time usually modifies this enthusiasm. While opinions still differ as to the relative merits of Wright's method of dealing with wounds and the Dakin-Carrel method, there would appear to be evidence to show that too much trust should not be placed on either, and that other means are required to meet the exigencies of severe sepsis. In civil practice the patient has a good chance of recovery, if the infecting organisms can be attacked at the site of entrance and if the defensive powers can be assisted by general means.

<sup>1</sup> Journ. Biol. Chem., Vol. xxiii., p. 247, 1915.



On the other hand but little value has been attributed to those agents which depend on the exercise of a sterilizing action in the blood. Colloidal silver and other metals, arsenic and mercury have proved themselves of small avail in the treatment of established septicæmia or pyæmia. The colloidal preparations probably exert their action by stimulating the leucocytes to greater antigenic activity. One of the latest suggestions for achieving this end has emanated from P. Nolf, who has adapted a treatment originally introduced to overcome the bacteræmia of enteric fever to septicæmia complicating war wounds.<sup>1</sup> It must be remembered that the wounded soldier usually differs from the civil patient, in being robbed of much of his defensive power, as a result of exposure, fatigue and extreme shock. The task which Nolf set himself, is therefore more difficult than that of checking the onward march of a typhoid infection. He has given intravenous injections of a 10% solution of peptone in cases of septicæmia following the infection of wounds with streptococci and with staphylococci. The dose given varied between 5 c.cm. and 15 c.cm. He warns his readers that great care must be exercised in the selection of the samples of peptone. Some of the commercial preparations are unsuitable and give rise to severe toxic symptoms. He refuses all cheap preparations and tests his stock on laboratory animals. When a fresh bottle is begun, the injections are carried out very slowly through a fine needle, and the first sign of intoxication is taken as a signal to stop. In some of his cases it would seem as if the peptone had actually determined the issue and had changed a fatal infection into one ending in recovery. In other cases this effect is not apparent, while in yet others, there was distinct failure. A perusal of the histories of the various cases does not lead to conviction of a curative action on the part of peptone, and in the cases in which recovery followed, another explanation can readily be found. It is possible that the peptone may have been responsible for some of the undoubtedly remarkable recoveries. If this be the case, the explanation offered is probably insufficient. The author recognizes that the facts elicited at the bedside scarcely justify any deductions, but from experiments on animals he has come to the conclusion that peptone exercises a selective action on the plasma, the leucocytes, the vascular endothelium and the liver, calling forth an increased defence of the tissues. He describes the reaction following the injections. This includes a rise of temperature, accompanied by a rigor and followed by copious sweating. While this reaction is not always seen, it is probable that it has in itself a therapeutic action. Whether this action is a safe one or not, is not easy to determine. All fever is produced by bacteria or by the products of bacteria. The peptone is carefully sterilized before injection and clarified by filtration. This, however, does not guarantee freedom from bacterial pyrogen. The stimulating effect of the peptone, however, may cause a renewed inpouring of the infecting bacteria into the blood stream. In the former case the pyrogen would give rise to a biologi-

cal response, which might have a direct effect on the invading bacteria. In the latter case the result would be an effort of the soluble antibodies to overcome the bacteria and their products, both in the blood and in the tissues. Fever is always a protective process and it is probably a measure of the dose of antigen absorbed. The response must be a corresponding amount of antibody, provided that the organism is still capable of responding. Added to this, the sweating would be a means of eliminating much of the dissolved products of the bacteria, while the increased cutaneous circulation attendant on sweating, would supply an increased amount of antibody to the foci of infection. These considerations suggest that peptone may prove to be of use in the treatment of various septic and bacteræmic conditions, but they would bid the surgeon, at the same time, to be exceedingly careful how he applied so powerful an agent.

#### ANZACS' SANTA CLAUS.

We have been requested by the Honorary Organizer of the Fruit and Vegetable Fund for Fighters' Families, of 16 Carrington Street, Wynyard Square, Sydney, to publish an appeal for assistance in their Christmas undertaking. It is stated that 4,000 little stockings will be hung up on Christmas Eve, and that 4,000 eager little Anzac faces will peep into them on Christmas Day. Those of us who remain at home should regard it as a pleasant duty to do something to brighten Christmas for the wives and little ones of our brave soldiers across the seas. The contributions asked for are money, puddings, cakes, sweets, toys (not necessarily new), fruit, vegetables, eggs and jam. Donations should reach the Depot not later than December 15, 1917. Contributions of children's clothing and boots are also asked for.

#### Uital Statistics.

##### BRISBANE.

The returns of the births and deaths registered in Greater Brisbane during the months of August and September, 1917, have been issued in the usual manner by the Government Statistician.

The total number of births was 841. This number is smaller than the number for the corresponding months in 1916. The birth-rate in August was equivalent to an annual rate of 30.24, and in September to an annual rate of 29.64. There were 66 illegitimate births. The illegitimate birth-rate was therefore 0.38 per 1,000 of population for the two months.

The number of deaths registered was 319, which represents 77 less than the number registered in August and September, 1916. The death-rate in August was equivalent to an annual rate of 12.36, and in September 10.32. Of the 319 persons who died, 55 were under five years of age and 50 under one year of age. The infantile death-rate was therefore 65.1 per 1,000 births. The number of deaths occurring in public institutions was 133.

There were 99 deaths due to diseases of the cardiovascular system, including 65 deaths from organic diseases of the heart and 19 from cerebral hæmorrhage. Of the acute infective processes, tuberculosis caused 21 deaths, pneumonia six, broncho-pneumonia six (in addition to three deaths ascribed to "congestion of the lungs") and diarrhoea and enteritis six. There were four deaths from syphilis, four from acute endocarditis, three from diphtheria, three from tetanus, three from acute nephritis and three from acute rheumatism, two from epidemic cerebrospinal meningitis and one each from influenza, scarlatina, erysipelas, simple septicæmia and pleurisy. There were 33 deaths from cancer, three from diabetes and one from leukaemia. The number of deaths associated with the puerperal condition was six, including three from puerperal septicæmia.

<sup>1</sup> *Ambulance de l'Océan-La Pance, Fascicule I., July, 1917.*

## Abstracts from Current Medical Literature.

### SURGERY.

#### (191) Splenectomy.

O. Grey Turner urges surgeons to utilize their opportunities of making physiological observations in the course of their work (*Practitioner*, June, 1917). Referring to the surgical treatment of the spleen after trauma, he discusses its functions and suggests that modern physiology attributes to the spleen fewer and simpler functions than were formerly taught. Starling regards the spleen as the great blood filter, purifying the blood by taking up particles of foreign matter and effete red corpuscles. Phagocytosis is a normal function of this organ. There is not sufficient evidence to determine whether the formation of red blood corpuscles actually takes place normally in the spleen. Other physiologists suggest that the spleen may have the power of removing micro-organisms from the blood or of destroying their toxins. In regard to the removal of a damaged spleen, the author regards it to be a mistake to operate during the first shock of an accident. The best time for this procedure is after the patient has reached the stage of reaction. In the next place, he points out that very serious hemorrhage may follow rupture of the spleen, if it is pathologically enlarged. In reviewing his experience of traumatic rupture of the spleen, he has come to the conclusion that a delayed operation and direct transfusion of blood constitute the correct treatment. His second subject is wandering spleens. An abnormally movable spleen may travel about the abdomen in a remarkable way. It may be found in the pelvis, and in this position may be mistaken for every kind of tumour. It is often difficult to determine whether a pathologically enlarged spleen has become movable, or whether repeated attacks of torsion of its pedicle has led to hypertrophy. The twists may be so tight that the pedicle may be completely separated. In these circumstances the organ may receive its nurture from the omentum. In the third place, he discusses some points in connexion with the surgical treatment of Banti's disease and the allied conditions. He emphasizes the necessity of excluding leukaemia before the spleen is removed for a condition of anaemia with splenic enlargement. The differential diagnosis between an infective enlargement of the organ secondary to a gastric ulcer and a primary splenic anaemia is briefly entered upon. The advisability of keeping a patient in whom the diagnosis of splenic anaemia has been made, for a time under observation is illustrated by the recital of a case. Splenectomy for splenomegaly in children is also dealt with. In this condition, which is often associated with syphilis, the clinical picture may simulate

splenic anaemia of adults. When the destruction of blood cells in the spleen is excessive, a type of jaundice may develop in which bile is not present in the urine. In this condition there is evidence of increased formation of blood, presumably associated with the unusual destruction. These cases are spoken of as chronic acholuric jaundice. Splenectomy apparently benefits the patients. In regard to the technique of the operation, the author warns others to regard this operation as a very difficult one, which may tax the resources of the operator severely.

#### (192) Carrel Treatment of Wounds.

In relating his experience of the Carrel treatment of war wounds, Barling (*Brit. Journ. Surg.*, July, 1917) insists on the great need for properly preparing Dakin's solution. The presence of caustic soda is very harmful. It may be detected with phenolphthalein, an intense red being given. Dakin's fluid is always unstable, and must be protected from the light. The antiseptic is run into the wound by small rubber tubes closed at the end by ligatures, and perforated by tiny holes made with a dental punch. The idea is to retain some of the fluid in the tube, whence it will flow slowly into these tissues. Counter-openings are not used, the process being more a soakage than an irrigation. The number of tubes may vary from one to ten. If only one is used, the antiseptic is instilled with a small Carrel syringe, but as a rule a glass reservoir is suspended above the bed, and every two hours fresh solution is run in and evenly distributed. The dressing consists of small pieces of plain gauze, and of Gamgee tissue. There is no packing with gauze, however, and cotton wool is considered an unsuitable material. A smear from the wound is examined every two days. When the number of organisms has diminished to a certain degree, provided the clinical appearance is in accord with the bacteriological report, the wound may be closed by suture. The dressing is carried out with a scrupulously careful aseptic technique, the surrounding skin being cleaned with a neutral soap.

#### (193) Recurrence of Gall-bladder Symptoms.

J. B. Deaver (*Surg. Gynec. and Obstet.*, October, 1917) reviews his operation results of the biliary tract. Four per cent. were cases which had been operated on for gall-bladder conditions elsewhere, the majority less than a year previously. He prefers cholecystectomy to cholecystostomy, and agrees with Kerr in the advantage of prolonged drainage of the widely incised choledochus in certain cases. For this purpose he strongly recommends a T-shaped drainage tube. The failure to remove all the gall-stones is the most potent cause of recurring symptoms. Early operation is therefore necessary, because in long-standing cases stones lodge in the recesses of the ducts and

cannot always be detected and removed. In other cases symptoms recur because the operation fails to remove all the infection. Less common causes are obstruction at the papilla of Vater and interstitial pancreatitis. The role of adhesions in producing symptoms is difficult to define. Adhesions form after all such operations to a greater or less extent. Many minor discomforts are due to them, but it is rare for adhesions themselves to give rise to symptoms demanding operation. It is, of course, important to avoid them as much as possible by diminishing the trauma of endothelial surfaces, and by overcovering raw surfaces. Rough sponging and the careless dissemination of bile or blood are surgical sins in the upper abdomen. In spite of the claim put forward for the aseptic formation of gall-stones, Deaver holds with Moynihan that every gall-stone is a tombstone erected to a dead bacterium within, and is what Murphy calls "an infection sequence." The appendix, in his opinion, is the focus of infection for nearly all upper abdominal diseases.

#### (194) Sub-total Thyroidectomy.

In *Surgery, Gynecology and Obstetrics* of October, 1917, W. Bartlett emphasizes the need for removing a large portion of thyroid tissue from both lobes owing to the unsatisfactory results following extirpation of the isthmus and one lobe only. He points out that in the Mayo clinic for 1913 in 533 operations on non-toxic goitres, a double resection was done in 57%. He agrees with the workers in the Mayo clinic that it is impossible to draw a definite line in the treatment between non-toxic and toxic goitres. He claims that no symptoms due to deficient thyroid secretion arise, although in one case he removed as much as four-fifths of the gland. Kocher's incision is used, but before operation with the patient in the erect position, he marks out the line which will be most easily concealed by wearing a chain subsequently. On the table the elevated position of the upper part of the body is insisted on, and the intra-tracheal method of ether anaesthesia adopted. The patient's face can thus be shut off under sterile towels. For drainage a split rubber tube is placed transversely under the ribbon muscles. The skin is sutured with very fine Chinese silk on a non-cutting cambric needle. This stitch is not left in longer than 48 hours. The patient is nursed for the first few hours on her face, with a pillow under her chest to allow easy expulsion of the excessive mucus from which these patients suffer. Of 26 patients operated on by this method, all but one left hospital improved. Three, however, showed symptoms suggestive of parathyroid disturbance. One had epileptiform seizures every three weeks afterwards. Another had temporarily some rigidity of the jaw and hand muscles while the third had trismus the night succeeding the operation. In the only unsuccessful case, the patient experienced a "post-operative psychosis," and died insane 82 days after the operation.



## GYNÆCOLOGY AND OBSTETRICS.

## (195) Glycosuria in Pregnancy.

T. Torland (*North-West Med.* September, 1917) writes that there is a definite inter-relation between the female genitalia and the carbohydrate metabolism, glycosuria often increasing and reappearing during menstruation and occasionally disappearing after the removal of uterine myomata. This co-relation, however, is especially noticeable during pregnancy, and it is claimed by some authors that from 10% to 12% of all pregnant women have glycosuria, and by some even as high as 40%. This form of glycosuria has been called "benign glycosuria of pregnancy," and is regarded by many as a leakage of sugar through the kidneys, but Hirschfeld claims that it is no different from diabetes mellitus except in severity. The author agrees with Hirschfeld and regards the one as a temporary disturbance of function and the other as a permanent defect. Usually benign glycosuria in pregnancy permanently disappears immediately or a very short time after the child is born. In former times it was believed that diabetes and pregnancy never co-existed, the women always being sterile. This, however, has been refuted by recent observers, and there are altogether about 100 cases reported in literature. Von Noorden found that in 240 married women, between 20 and 40 years of age, with diabetes, pregnancy only occurred nine times, that is, only in 3%. It is probable that the occurrence of pregnancy in diabetes in the last few years has been considerably more frequent, due to the improved dietetic and hygienic treatment. The author regards the prognosis of this combination very seriously, as the diabetes usually becomes more severe in pregnancy and compromises the lives of both mother and child. It is often the cause of habitual miscarriages and maceration of the fetus. Offergeld reports that in his 57 cases, 17 of the mothers died during pregnancy or delivery, and 14 of the mothers died within 30 months of delivery from diabetes or tuberculosis. As to the children, 29, or 51%, died before birth, 6 died in the first days after birth, and 7 died within the first year from hydrocephalus, diabetes or polyuria. The principal dangers for the mother are: increase in the severity of her diabetes, often ending in acidosis and coma, lessened resistance to infection, which leads to a higher percentage of sepsis, and hydræmion. As for the fetus, the dangers are abortion, considerably over 50% are non-viable, hydrocephalus and giant fetus. The author thinks that by the more rational treatment of to-day, a more optimistic result ought to be expected for both mother and child. Obstetricians for a long time thought that when a diabetic woman became pregnant, the strict dietetic treatment ought to be abandoned for fear of acidosis and coma. This, however, has been proved, by recent later observers, to be erroneous. In regard to the

treatment, he considers that the regular antidiabetic diet ought to be carried out, and small concessions made only when nausea and vomiting are extreme. The carbohydrate consumption must be as near the tolerance point as possible, except in the presence of grave symptoms, such as severe headaches, vertigo, partial or complete blindness, and the appearance of acetone and oxybutyric acid in the urine. These symptoms may sometimes be relieved by high rectal irrigations containing maximum doses of sodium bicarbonate, and if not relieved, the carbohydrate ingestion must be increased regardless of theoretical objections. The question of abortion in these cases is debatable. It depends upon whether the diabetes is progressive or stationary, and whether it becomes increasingly severe. Offergeld emphasizes the fact that it is sometimes dangerous to wait with the hope of getting a viable child. In regard to anaesthesia, the author is of opinion that chloroform and ether are absolutely contra-indicated, and advocates gas-oxygen, spinal or novocaine anaesthesia. Special attention must be paid to a sepsis on account of the vulnerability of the tissues to microbic infection.

## (196) Pelvic Varicocele.

H. Dawson Furness (*Amer. Journ. Obstet.*, January, 1917) gives a detailed account of pelvic varicocele in women, which, though not often recognized, he considers is of equal importance to scrotal varicocele. He gives to Palmer Dudley the credit of having written the first articles on this important subject. In his paper he considers only the form of varicocele that exists more or less as an entity, and not that form due to pressure of the pregnant uterus, etc. The veins affected are those that form the pampiniform plexus and the branches into which they drain. He regards pregnancy as an important ætiological factor, as during this state the veins become enormously dilated, and unless post-partum involution is good, they do not return to their former size. Loss of pelvic support, malposition, especially retroversion, and infection, play their part. Any condition that causes loss of fat and general ptosis is an important factor. It is more frequent in multiparous women with torn and relaxed pelvic outlets; at times it is experienced even in primiparæ and virgins. The condition often gives rise to dull, dragging pain, which is worse after standing or overwork, and is immediately relieved by resting or lying down. This prompt relief, following the assumption of a recumbent position, is a characteristic of the disease. It is also relieved by vaginal tamponade, and its recurrence almost immediately after the removal of the pack is extremely suggestive. Conservative treatment consists of gymnastic exercises, especially those applicable to the abdominal muscles, the adoption of the knee-chest posture at night, sleeping with the foot of the bed elevated, wool tampons and hot

douches. In regard to operative treatment, Crossen and Sencert advocate ligation at either end of the broad ligament, excision of the veins between and peritonization afterwards. The author holds that this operation must be done with great care, on account of troublesome bleeding and development of hæmatoma. He practises a simple operation of ligation of the ovarian veins at the pelvic brim. It is easier and safer, and just as effective. The repair of the pelvic floor and the correction of malpositions are essential to the success and relief of symptoms, and, if not done, it leaves undisturbed one of the ætiological factors in varicocele.

## (197) Primary Ovarian Pregnancy.

C. Lockyer (*Proc. Royal Soc. of Med.*, June, 1917) records two cases of primary ovarian pregnancy. He explains the fact that only 19 cases have been recorded in America up to the year 1909, as compared with 33 recorded in Europe, by the exclusion of all cases published in America before that of Van Tussenbroeck in 1899. He then proceeds to record two cases which were met with in his own practice. Case I: A multipara, 23 years old, complained of metrorrhagia and pain in the lower segment of the abdomen, with a doughy mass in the left posterior quadrant of the pelvis. The diagnosis made was left pyosalpinx. On opening the abdomen, an enlarged ovary was found and removed, with its accompanying tube, the abdominal ostium of which was closed. There were no free blood in the abdomen. A pathological examination of the hæmorrhagic ovarian cyst (7 cm. vertically and 4.8 cm. transversely) revealed that the capsule surrounding the blood clot was composed of ovarian structures, and within the clot were chorionic villi, for the most part very degenerated, but displaying in some cases strands of trophoblast bounding a fibrous core. The findings clearly prove this case to be a primary ovarian pregnancy, which resulted in the formation of an unruptured ovarian mole. Case II: A multipara, 33 years of age, complained of amenorrhœa of one week's duration and irregular bleeding, with acute abdominal pain. On examination, the uterus was found to be retroverted, with a mass on right side. The diagnosis arrived at was retroversion, double salpingo-oöphoritis, with right-sided pyosalpinx. On opening abdomen, right ovary was enlarged and adherent (5 cm.  $\times$  4 cm.). The tumour consisted of an upper part of solid ovarian tissue, which capped a blood cyst, the two parts being separated by a sulcus. The hæmorrhagic cyst showed definite invasion of ovarian stroma by chorionic villi, and within the clot itself was seen the lining of the chorio-amniotic sac, with large branching villi proceeding from the chorionic membrane, but no fetus could be found. He concludes by giving the case details of accepted cases, in addition to a series of cases in which the evidence is not sufficient to classify them as genuine.

## British Medical Association News.

### SCIENTIFIC.

A meeting of the New South Wales Branch was held at the B.M.A. Building, 30 to 34 Elizabeth Street, Sydney, on October 26, 1917, Dr. R. Gordon Craig, the President, in the chair.

Dr. M. O'Gorman Hughes read a paper entitled "Some of the Limitations of Military Orthopaedic Surgery." (See page 451).

Dr. R. S. Wade read a paper on "The Re-establishment of the Crippled Soldier." (See page 452).

Dr. L. Herschel Harris gave a lantern demonstration to illustrate the types of bone injuries met with in France and at Gallipoli. Some of the pictures shown have been reproduced in this, and in other journals. He first showed the picture of the cellar room, which was placed at his disposal at Ste. Nazaire, and the portable X-ray apparatus with which he was working. In this room many skiagrams were taken after the battle of the Marne. At Wimereux he had a larger room, and his plant was run with a small dynamo and engine which he had obtained from London. He spoke in terms of high praise of his assistant, an expert electrician who had previously been in the employment of the firm Siemens and Company. He then showed a picture of various missiles which had caused injuries. The remainder of the demonstration was occupied by an explanation of 42 excellent radiograms, illustrating injuries to bones and soft tissues caused by bullets, fragments of shell and shrapnel balls.

Dr. N. D. Royle read a paper on "The Neuro-muscular Re-education of the Soldier." (See page 453).

Dr. C. MacLaurin read a paper on "Stiff Knee." (See page 455).

Dr. H. S. Stacy spoke of his experience at the Hammersmith Orthopaedic Hospital, more particularly in April, 1917. He held the view that Bristow's faradic treatment was of value. The practice at Hammersmith was to employ faradism if the muscles reacted to electricity, and to employ galvanism if they were not active. Later on, when the reaction to faradic currents reappeared, both forms were employed. The only member of the staff who took a divergent view was Aitken. He maintained that he saw no benefit from electrical treatment, and consequently did not employ it. Dr. Stacy said that Bristow had expressed the opinion that only three of a staff of sixty masseurs were of any use in re-educating soldiers to acquire voluntary movement, after they had been shown how the muscles responded to electrical currents.

Referring to stiff joints, Dr. Stacy pointed out that opinions differed very radically. He was in favour of gradual movement, rather than forced passive movement under anaesthesia. At Hammersmith the staff made use of Turner's splint. The passive movement was effected by a gradual screwing up of the ratchet. He also dealt with the means adopted for freeing a fixed elbow by gradually shortening a bandage passed from a leather band round the wrist over the neck. It was necessary to prevent the overstretching of paralysed or paresed muscles. In referring to affections of the *erector spinae*, he stated that Aitken was in the habit of putting the patient in plaster by means of Abbott's frame. A partial correction of the kyphosis was obtained at once, and later the reduction was gradually completed. Aitken did not do many cutting operations. He, like Robert Jones, had passed through that stage. One of the advantages of using Abbott's frame was that the patient could walk about, and therefore voluntary movement was attained, in addition to passive movement.

Dr. Stacy referred to Dr. Herschel Harris's radiograms, which he regarded as excellent. When he was at the front, his radiographer had called his attention to the frequent presence of a broad "V"-shaped piece driven out of the bone. He had noticed this appearance in some of Dr. Herschel Harris's pictures. In turning to the subject of artificial limbs, he stated that he had worked under Openshaw at Southall. They had fashioned wonderful limbs upon which much ingenuity had been displayed. The more complicated of the artificial arms were very expensive, and he doubted whether they would ever be of much use. The limbs for the lower extremity were excellent. The cost of

an artificial leg to an officer was £25, and to a private was £15 to £20. Openshaw had the function of choosing the firms and directing the manufacture of artificial limbs. At times, amputation had to be performed quickly, and often no flap was made, or there was a flap which subsequently proved unserviceable. They had found that, with the use of a short Thomas's splint or the application of strapping, there was rarely any need to do a secondary operation. He thought that the adoption of this device would lead to the disappearance of criticism aimed against urgent surgery at the front. At Hammersmith they rarely performed an operation until at least six months had elapsed after the wound had completely healed.

Dr. Archie J. Aspinall thanked the readers of the papers for their interesting contributions. He called attention to the fact that many cases of foot-drop and of conditions due to a want of splinting and want of care at Base hospitals, had been improved by massage. In these cases no effort had been made to prevent deformity. He thought that this was a good field for work for junior practitioners.

Dr. C. E. Corelette asked what the real meaning of the word "osteoporosis" was. He ventured to suggest that the condition to which the term was applied was one of atrophy of the bone with absorption.

Dr. F. P. Sandes stated that the reconstruction work had been largely neglected in Australia. He gave instances to illustrate the defective organization of the Department and the effect of this on returned wounded soldiers. He thought that it was high time that the physicians and surgeons of Sydney should express their readiness to undertake any kind of reconstruction work. Many of the returned soldiers did not know that they could get their surgical defects remedied in civil hospitals. Dr. Sandes called attention to the fact that the Americans had evinced more forethought in their preparations for dealing with returned wounded men. An attempt should be made in Australia to cope with the position.

Dr. F. G. N. Stephens maintained that the masseurs were not trained to carry out the treatment prescribed. He held that everybody wanted to handle everything, and that there was little inducement to become competent in a particular class of case. Many of these people found the cases uninteresting and the result was not good for the soldiers returning to this country.

Dr. R. Gordon Craig thanked the speakers. He found that one big note had been struck. In war surgery it was not generally a matter of performing operations. The surgeon had to ask himself what he could do by splinting, by the employment of massage, by electrical treatment and by the re-education of muscles. The operative part was a minor part. Dr. O'Gorman Hughes was to be congratulated for his directness in speaking of the results of nerve suturing and other procedures, especially when these results should have been considerably better. Both in civil and in war work, the results which he had obtained after the suturing of nerves had been most disappointing in those cases in which time had elapsed or sepsis had supervened. He referred to a case in a man who had had his ulnar nerve divided at the elbow joint by a chaff-cutting machine. A surgeon had sutured the divided nerve with chromic gut at once. Within three months definite signs of commencing sensation and movement had appeared. This was due to the immediate approximation of the cut ends of the nerve.

Dr. Craig also dealt with Dr. MacLaurin's advice of applying passive movement to a stiff knee under anaesthesia in spite of the occurrence of a reaction. He took exception to this advice. He thought that the future would tell that violent passive movement was futile in its results. He agreed with Dr. Wade that passive movement should not be carried out, if an inflammatory reaction followed. When everything else had been tried without result, it might be justifiable to tell the patient that this heroic form of treatment could be carried out. If the patient elected to run the risk, he would do so with his eyes open. He asked Dr. MacLaurin whether he preferred to put up a leg after excision of the knee in a straight axis, or with the leg at a slight angle to the thigh. Dr. Craig himself preferred to put up the leg slightly flexed, because patients found it is easier to sit down. In the regard to the term orthopaedic surgery, he held that there was need for revision. Before the war it was practically limited to the



remedy of skeletal defects and paralytic conditions in children. The orthopaedic surgeon did not include the treatment of fractures in his special activity. He thought that reconstruction surgery would be a better term. He congratulated Dr. Wade on the admirable manner in which he had dealt with the treatment of the effects of septic wounds in limbs. It appeared to him that Wolfe's law explained the condition of osteoporosis in these cases. The architecture of any structure in the body was governed by the function that structure had to perform. He thought that osteoporosis was purely the result of want of function. Absorption of bone took place as the result of disuse.

He considered the question of the provision of artificial limbs as a very serious one. In many cases men had been fitted with limbs in England, and by the time they arrived in Australia, so much alteration had taken place in the stump that fresh limbs had to be made. After dealing with the principles involved in the construction of bucket legs and other artificial legs, he stated that there were many individual workers in Australia who could make suitable, serviceable limbs as well as they were made in England and elsewhere. It was important to remember that limbs had not only to be made; they had also to be kept in repair. A wise man would always keep one limb in reserve, in the same way as those who use motor cars found it essential to have a spare car for emergencies. In conclusion, he stated that he agreed with Dr. Royle on the great importance of the principle that massage and passive movements were but links in the chain, and were dependent on the more important factor of voluntary movement.

In his reply, Dr. M. O'Gorman Hughes stated that he preferred arthroplasty to excision of the knee or elbow, even if only a limited amount of movement could be obtained. He considered Dr. Stacy's suggestions for the avoidance of secondary amputations as excellent. He did not agree with Dr. Sandes that the failure to obtain treatment was usually due to a defect in the military organization. As a rule, it was the patient's own fault, if nothing were done.

Dr. C. MacLaurin stated that he was fully aware, when he advocated forcible movement under anaesthesia, that he was throwing a shell among the members. He was by no means surprised that the shell had exploded. The reason he had advocated this course was because he had seen it working at Hammersmith in Robert Jones's own hospital. At first he had been disinclined to follow the treatment, but he had gone more thoroughly into the matter and had been convinced. In mild cases of ankylosis following on non-septic inflammation, forcible movement under anaesthesia yielded excellent results. He was just as emphatic, however, that a surgeon should not move a joint that had been involved in a septic process. He should have mentioned in his paper that he advocated the method of continuous stretching of adhesions and employed this at Randwick Hospital. In reply to Dr. Craig, he stated that he usually fixed up the leg after excision of the knee in a position of very slight flexion.

In the course of a short reply, Dr. R. B. Wade said that he thought it was better to have a perfectly straight leg than one fixed in slight flexion. There was mechanical disadvantage connected with slight bending.

Dr. Royle dealt briefly with the necessity for teaching masseurs and masseuses anatomy and anatomical movement. He thought that the standard of training adopted by the Incorporated Society of Masseurs was below that set in Sydney.

The following have been elected members of the New South Wales Branch:—

- R. A. Sillar, M.B., 1917, Univ. Sydney, Royal North Shore Hospital, St. Leonards, N.S.W.
- Kate Knowles, M.B., B.S., 1904, Univ. London, c/o Dr. J. H. Little, Greengate Road, Killara, N.S.W.
- R. F. Matters, M.B., Ch.M., 1917, Univ. Sydney, High Street, Unley Park, South Australia.
- A. J. Hope, M.B., Ch.M., 1917, Univ. Sydney, c/o Messrs. F. Curtis & Son, Solicitors, Lyndhurst Chambers, Elizabeth Street, Sydney.
- S. S. Gardiner, M.B., 1915, Univ. Sydney, Hamilton, N.S.W.
- G. E. Hobson, M.B., Ch.M., 1917, Univ. Sydney, "Tuxedo," Albert Road, Homebush, N.S.W.

- E. E. Griffiths, L.R.C.P., Edin., L.S.A., Lond., M.R.C.S., Eng., 1881, Roslyn Hall, Manly, N.S.W.
- E. M. Fisher, M.B., 1913, Univ. Sydney, Royal Prince Alfred Hospital, Camperdown.
- E. P. Holland, M.B., 1917, Univ. Sydney, Royal Prince Alfred Hospital, Camperdown.
- R. M. Allport, M.B., Ch.M., 1917, Univ. Sydney, Royal Prince Alfred Hospital, Camperdown.

## Naval and Military.

### CASUALTIES.

The 335th, 336th and 337th list of casualties sustained by Australian soldiers were issued to the public on November 21 and November 24, 1917. These lists contain no less than 3,082 names. The number of those killed in action or died from other causes is 480, and of those wounded 2,774. No less than seven medical men are among the wounded. Their names are Major William Bannerman Craig (severely), Major Arthur Vincent Meehan (severely), Major James Beverley Metcalfe (severely, previously reported ill), Major Thomas Maynard Furber (second occasion), Captain Harold Frank Dunstan (severely), Captain William Leonard Millet and Captain Idris Morgan. Captain Ronald James Hunter is reported to be ill.

### HONOURS.

According to information received from various sources, Major S. V. Appleyard, Major W. B. Craig, Major W. A. Hailes, Major H. B. Lee and Major R. M. McMaster, have been awarded the Distinguished Service Order. Captain D. L. Barlow, Captain J. H. Brown, Captain S. G. Gibson, Captain C. H. Kellaway, Captain P. J. F. O'Shea, Captain S. A. Railton and Captain E. W. Woods have been awarded the Military Cross. Captain C. H. Leedman and Captain P. I. F. O'Shea have been awarded the bar to the Military Cross. Captain Norman C. Talbot, R.A.M.C., a graduate of the Melbourne University, has also been awarded the Military Cross.

### APPOINTMENTS.

It is announced in the *Commonwealth of Australia Gazette*, No. 200, of November 22, 1917, that Dr. Howard Francis Praagst has been appointed Surgeon to the Permanent Naval Forces of the Commonwealth (Sea-going) for temporary service, with salary at the rate of 25s. per diem and rations. He was paid an equipment allowance on his appointment on September 27, 1917, of £25.

In the same issue the following appointments are announced:—

#### Australian Army Medical Corps.

##### To be Colonels:—

- Lieutenant-Colonel T. M. Martin, C.M.G., No. 2 Australian Auxiliary Hospital.
- Lieutenant-Colonel (temporary Colonel) A. T. White, V.D., Assistant Director Medical Services, 3rd Australian Division. Dated 8th June, 1917.
- Lieutenant-Colonel (temporary Colonel) R. B. Huxtable, D.S.O., Assistant Director Medical Services, 1st Australian Division.
- Lieutenant-Colonel W. W. Hearne, D.S.O., Assistant Director Medical Services, 5th Australian Division.
- Lieutenant-Colonel J. B. McLean, D.S.O., No. 2 Australian General Hospital.

##### To be Lieutenant-Colonel:—

- Major J. B. Moore. Dated 9th June, 1917.

##### To be Temporary Colonel:—

- Lieutenant-Colonel H. A. Powell, C.M.G., whilst commanding No. 2 Australian General Hospital. Dated 28th June, 1917.

##### To be Temporary Lieutenant-Colonel:—

- Major B. M. Sutherland, whilst commanding No. 3 Australian Auxiliary Hospital. Dated 27th June, 1917.

Captain (temporary Major) J. B. Lewis ceased to be temporary Major.

##### To be Temporary Major

- Captain A. W. H. a'Court, whilst second in command of No. 1 Australian Hospital ship *Kareola*. Dated 4th July, 1917.

**Public Health.****NEW SOUTH WALES.**

The following notifications have been received by the Department of Public Health, New South Wales, during the week ending November 17, 1917:—

	Metropolitan Combined District. Ca. Dths.		Hunter River Combined District. Ca. Dths.		Rest of State. Ca. Dths.		Total. Ca. Dths.
Enteric Fever ..	8	0	0	0	8	0	16 0
Scarlatina ..	14	0	1	0	3	0	18 0
Diphtheria ..	21	1	3	0	27	0	51 1
C'bro-Spl. Menin.	2	2	0	0	2	0	4 2
* Pul. Tuberculosis	24	7	2	1	0	0	26 8

\* Notifiable only in the Metropolitan and Hunter River Districts, and, since October 2, 1916, in the Blue Mountain Shire and Katoomba. One case of variola has been notified from Abermain.

**VICTORIA.**

The following notifications have been received by the Department of Public Health, Victoria, during the week ending November 18, 1917:—

	Metropolitan Ca. Dths.		Rest of State. Ca. Dths.		Total. Ca. Dths.
Diphtheria ..	37	2	30	2	67 4
Scarlatina ..	33	1	19	0	52 1
Enteric Fever ..	1	0	4	0	5 0
Pulmonary Tuberculosis	26	12	8	3	34 15
C'bro-Spl. Meningitis..	2	—	3	—	5 —

**QUEENSLAND.**

The following notifications have been received by the Department of Public Health, Queensland, during the week ending November 17, 1917:—

Disease.	No. of Cases.
Diphtheria ..	22
Erysipelas ..	1
Pulmonary Tuberculosis	3
Scarlatina ..	2
Enteric Fever ..	11
Malaria ..	1

**SOUTH AUSTRALIA**

The following notifications have been received by the Central Board of Health, Adelaide, during the week ending November 10, 1917:—

	Adelaide. Ca. Dths.		Rest of State. Ca. Dths.		Total. Ca. Dths.
Diphtheria ..	5	0	20	0	25 0
Pulmonary Tuberculosis	0	0	10	10	10 10
Scarlatina ..	0	0	7	0	7 0
Pertussis ..	0	0	7	0	7 0
Enteric Fever ..	1	0	3	0	4 0
Morbili ..	0	0	1	0	1 0
Favus ..	0	0	1	0	1 0
C'bro-Spl. Meningitis	0	0	1	1	1 1

**TASMANIA.**

The following notifications have been received by the Department of Public Health, Tasmania during the week ending November 17, 1917:—

Disease.	Hobart. Cases.	Launceston. Cases.	Country. Cases.	Whole State. Cases.
Diphtheria ..	2	1	6	9
Enteric Fever ..	1	1	0	2
Pulmonary Tuberculosis	1	2	4	7
Scarlatina ..	0	0	1	1

**WESTERN AUSTRALIA.**

The following notifications have been received by the Department of Public Health, Western Australia, during the week ending October 27, 1917:—

	Metropolitan. Cases.	Rest of State. Cases.	Totals. Cases.
Diphtheria ..	12	6	18
Scarlatina ..	1	2	3
Pulmonary Tuberculosis	4	1	5
Erysipelas ..	1	0	1
Septicæmia ..	0	1	1

**NEW ZEALAND.**

The following notifications have been received by the Chief Health Officer, Department of Public Health, Hospitals and Charitable Aid, New Zealand, for the four weeks ending November 12, 1917:—

Disease.	No. of Cases.
Scarlatina ..	144
Diphtheria ..	358
Enteric Fever ..	39
Pulmonary Tuberculosis	117
Cerebro-spinal Meningitis	2
Poliomyelitis ..	11
Puerperal Fever ..	6
Erysipelas ..	8
Ophthalmia Neonatorum	1
Hydatids ..	1
Septicæmia ..	1

**Obituary.****GOTHER ROBERT CARLISLE CLARKE.**

On February 22, 1915, Gother Robert Carlisle Clarke was gazetted a Captain in the Australian Army Medical Corps, and on March 3, 1916, he was appointed to the Australian Imperial Force, and left the Commonwealth as Regimental Medical Officer to the 34th Battalion. On June 22, 1917, he was promoted to the rank of Major, and on October 12, 1917, he was killed in action. No further particulars of the circumstances under which he met his death are yet to hand. The scanty details of his career as a member of the Army Medical Corps suffice to tell us that he behaved as a true son of the Empire and that he has contributed in no small degree to the establishment of the wonderful reputation of the Regimental Medical Officers of the Australian Imperial Force. He was one of the men of whom the medical profession is justly very proud.

Gother Robert Carlisle Clarke was born in North Sydney on April 27, 1875. His education was undertaken at the Church of England Grammar School of Sydney. At that time the school was considerably smaller than it is now, but the present Head Master, in writing of him, has expressed the belief that the quality of the earlier pupils was so splendid and their character so fine that they laid the foundation of the high standard and good deed of the later boys. "I know," writes the Head Master, "from many accounts how he (Clarke) was among the noblest boys that were ever at this or any school." His school days continued until he was nearly nineteen years of age. In 1890 he passed his "Junior Examination," and shortly before leaving he satisfied the examiners that he was fitted to proceed to the University. Before he left, he had held the positions of "Head of the School," prefect, captain of the first eleven cricket team, captain of the first fifteen football team and Honorary Secretary of the School Athletic Sports Club. At the University he worked well and played well; and consequently was in favour with both classes of students. His prowess at cricket increased with time, and during his University course he became a member of the Intercolonial (New South Wales) eleven and of the University eleven. His services as a left-hand bowler were greatly valued. At the time of the visit from England of Stoddard's team he did good work for Australian cricket. In 1902 he graduated M.B. and Ch.M., and shortly after he was appointed Medical Superintendent of the Newcastle Hospital. In 1903 he acquired the practice of Dr. Pentland, of Wahroonga. During the thirteen years which he devoted to private practice, he exhibited those qualities which render a man of the greatest value to his patients. He was naturally possessed of a cheerful disposition, and this quality enabled him to adopt a measured optimism which is of vast therapeutic



importance. His kindness of heart and sympathetic manner endeared him to his patients. Added to this, his thorough knowledge of his science and industrious habits placed him high in the ranks of the general practitioner. His widowed mother and other relatives have received many proofs of acts of professional courtesy and kindness and have been assured of the affection and respect in which he was held both by his colleagues and his patients.

#### VICTOR ETHELBERG LUDLOW.

Victor Ethelberg Ludlow, whose death took place in Sydney on October 31, 1917, was the third son of the late David Ludlow, J.P., one time Mayor of Newcastle. He studied medicine at Trinity College, Dublin, and in the year 1886 he obtained the diplomas of the Royal Colleges of Physicians and Surgeons of Ireland. During his student life he studied midwifery at the celebrated Rotunda School. We are informed that he obtained numerous special certificates in various subjects at his examinations. He gained prizes as a student in anatomy, midwifery and medical jurisprudence, and took first class honour in medicine and surgery. After qualifying, he obtained various appointments in several of the Dublin hospitals. He was regarded as one of the most distinguished students of his year. At the end of 1886 he returned to Australia and was registered as a medical practitioner of New South Wales in January of the following year. At first he returned to his native city of Newcastle, where he practised for many years. He was an honorary surgeon at the Newcastle Hospital, and at a later date an honorary consulting surgeon. He held various other appointments in Newcastle institutions. He was a Justice of the Peace for New South Wales and Queensland. Early in 1900 he went to Sydney and practised at Waverley for close on 15 years. At the end of this time he was compelled to retire, on account of failing health. A trip to Honolulu was undertaken with the object of restoring to him some of his lost energy and activity. Unfortunately, this did not have the desired effect, and he became practically a confirmed invalid after his return.

Victor Ethelberg Ludlow was a man who commanded high respect from his colleagues and from all with whom he came into contact. He was eminently successful as a practitioner, and his opinions on professional matters always commanded attention. He had a sound business capacity, which he put to good account as a Director of the Australian Metropolitan Life Office and of other companies. He took a great interest in the affairs of the New South Wales Branch of the British Medical Association, of which he was a member throughout the whole of his professional career.

#### THE ALVARENGA PRIZE.

The Alvarenga Prize of the College of Physicians of Philadelphia will be awarded on July 14, 1918, to the writer of an essay deemed by the Committee of Award to be worthy of it. Its value is approximately \$250. Essays for competition may be on any subject in medicine, but no essay that has been published will be accepted. The essay must be typewritten, and, if written in a language other than English, must be accompanied by an English translation. The essay must be sent without signature, but must be plainly marked with a motto, and must be accompanied by a sealed envelope, having on its outside the motto of the paper, and within the name and address of the author. It must be in the hands of the Secretary of the College of Physicians not later than May 1, 1918.

The Alvarenga Prize for 1917 has been awarded to Dr. Wilburt C. Davison, of Baltimore, for an essay entitled, "The Superiority of Inoculation with Mixed Triple Vaccine (*B. typhosus*, *B. paratyphosus* A. and *B. paratyphosus* B.) over successive inoculations with the Single Vaccine, as Shown by Agglutinin Curves in Men and Rabbits."

#### Correspondence.

##### ALBEE'S OPERATION

Sir,—I have read with interest my friend Dr. Ambrose's article on the treatment of Pott's Disease by Albee's operation.

I was fortunate enough to be present at a personal demonstration of his method by Dr. Albee in the presence of Sir William McEwan, Sir Robert Jones, Professor Cushing, Drs. J. B. Murphy, W. J. Mayo and other illustrious surgeons, and on that occasion, with all the enthusiasm characteristic of his race, I do not remember Dr. Albee promising to reduce the length of treatment to a few weeks.

It has not been mine or any other Sydney surgeon's experience (and there are several) that mechanical and rest treatment can be dispensed with. I am afraid if Albee's operation alone were depended on for the cure of any case of Pott's disease, the procedure would be looked on as rational as treating syphilis with salvarsan alone, to the exclusion of mercury.

Yours, etc.,  
193 Macquarie Street, Sydney,  
November 21, 1917.

E. H. BINNEY.

#### BARCOO ROT AND SPUE.

Sir,—There is a striking unanimity of the value of some mercurial ointment amongst the writers on these subjects, in the treatment of Barcoo Rot. It is another instance of the fact that empiric treatment is often on scientific lines. The clipping of the epidermis and the use of mercurials arrived at empirically are shown to be on modern scientific lines by the investigations of Lieutenant-Colonel Martin.

Dr. Humphrey Marten's fly-poisoned sugar theory for Barcoo spue is too funny for words. By it you can imagine managers, station hands, etc., sitting down to heaped platesful of sugar, a diet that would make almost anyone sick. From personal observation, I can assure Dr. Marten that sugar is taken in the ordinary way and in ordinary quantities. It presumes, too, that the Barcoo district is the only district where flies exist, or are allowed to wander over sugar and other edibles. Again, the spue only occurs in the moist, steamy heat following heavy rains; flies and sugar are there at other times. As "Vomitus," in his letter of October 25, 1917, (published in *The Medical Journal of Australia*, November 3, 1917), states: the sickness usually occurs after the midday meal, i.e., when the moist heat is at its greatest. In a modified way a very intense, moist, sticky heat anywhere produces a tendency to a similar condition, as the common expression, "What a sickly heat" indicates. Just now we have the fact that the Barcoo spue is a disagreeable affection existing over a limited area; the exact cause is at present unknown.

Yours, etc.,

LEONARD W. BICKLE, F.R.C.S. Edin.

Sydney, November 19, 1917.

#### BELLYANDER SPEW.

Sir,—Members interested in this disease may find value in an observation made some years ago by the late Dr. J. Froude Flashman.

A female patient, about 30 years of age, was admitted under my care at hospital. She was born and had spent her whole life in Queensland. Persistent vomiting, without obvious cause, began in the Northern State, and had resisted all the usual methods of treatment for at least a month.

Discussing the curious case with Dr. Flashman, he suggested that I should irrigate the stomach with sterile water and bring him the washings. At this time he was interested in an outbreak of cases similar in character, among a camp of men engaged in bridge construction on the Bellyander River.

In the precipitate obtained from the first washing he discovered some small terra-cotta coloured particles, such as he had never previously seen in stomach ejecta. By some accident these specimens were lost in the laboratory. I remember well how greatly Dr. Flashman deplored the loss of these particles, since none were found in subsequent washings, and after the fourth day vomiting ceased. Patient rapidly improved and there has never been any recurrence.

Since this observation, so far as I know, has never been recorded, I place it before the profession for what it may be worth to those meeting the disease. Its chief value now lies in the fact that it was made by a precise, original scientific investigator, whose loss we all mourn.

Yours, etc.,

WILLIAM T. CHENHALL.

Sydney, November 22, 1917.

### Books Received.

ANAPHYLAXIE ET ANTIANAPHYLAXIE, *Basés Expérimentales*, par A. Besredka; Préface de E. Roux; 1917. Paris: Masson & Cie. Royal 8vo., pp. 146. Price, 4 fr.

CLINICAL CARDIOLOGY, by Sellan Neuhof, B.S., M.D.; 1917. New York: The Macmillan Company, Melbourne: Melville & Mallen, Pty., Ltd. Royal 8vo., pp. 302, illustrated. Price £1.

TRANSACTIONS OF THE ROYAL ACADEMY OF MEDICINE IN IRELAND, Volume XXXV., edited by J. Alfred Scott, M.A., M.D., F.R.C.S.I.; 1917. Dublin: John Falconer. Demy 8vo., pp. 202.

### Proceedings of the Australian Medical Boards.

#### TASMANIA.

The following gentleman has been registered under the provisions of "The Medical Act, 1908" as a duly qualified medical practitioner:—

Vilcourt Pierre Mondon, M.B., Edin., 1910, Ch.B., Edin., 1910, Hobart.

### Medical Appointments.

For a period of twelve months, on probation, Dr. Gilbert Elliot Aitken has been appointed Second Assistant Medical Superintendent to the Hospital for the Insane, Goodna, Queensland.

It is announced that the position of Quarantine Officer at Gladstone, Queensland, recently held by Dr. Clatworthy (B.M.A.), has been given to Dr. H. Leighton Kesteven.

The resignation of Dr. Charles Duguid (B.M.A.), of Maylands, South Australia, as a Public Vaccinator, has been accepted.

### Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xvii.

Department of Trade and Customs, Quarantine Officer.  
Cue-Day Dawn Hospital, Medical Officer.

### Medical Appointments.

#### IMPORTANT NOTICE.

Medical practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, 429 Strand, London, W.C.

Branch.	APPOINTMENTS.
<b>TASMANIA.</b> (Hon. Sec., Belgrave, Tasmania.)	Medical Officers in all State-aided Hospitals in Tasmania.
<b>VICTORIA.</b> (Hon. Sec., Medical Society Hall, East Melbourne.)	Brunswick Medical Institute. Bendigo Medical Institute. Prahran United F.S. Dispensary. Australian Prudential Association Proprietary, Limited. National Provident Association. Life Insurance Company of Australia, Limited. Mutual National Provident Club.

Branch.	APPOINTMENTS.
<b>QUEENSLAND.</b> (Hon. Sec., B.M.A. Building, Adelaide-Street, Brisbane.)	Medical Officers to the Selwyn Hospital, North Queensland. Brisbane United Friendly Society Institute.
<b>SOUTH AUSTRALIA.</b> (Hon. Sec., 3 North Terrace, Adelaide.)	The F.S. Medical Assoc., Incorp., Adelaide. Contract Practice, Appointments at Renmark.
<b>WESTERN AUSTRALIA.</b> (Hon. Sec., Health Department, Perth.)	All Contract Practice Appointments in Western Australia.
<b>NEW SOUTH WALES.</b> (Hon. Sec., 30-34 Elizabeth Street, Sydney.)	Australian Natives' Association. Balmain United F.S. Dispensary. Canterbury United F.S. Dispensary. Leichhardt and Petersham Dispensary. M.U. Oddfellows' Med. Inst., Elizabeth Street, Sydney. Marrickville United F.S. Dispensary. N.S.W. Ambulance Association and Transport Brigade. North Sydney United F.S. People's Prudential Benefit Society. Phoenix Mutual Provident Society. F.S. Lodges at Casino. F.S. Lodges at Lithgow. F.S. Lodges at Parramatta, Penrith, Auburn and Lidcombe. Newcastle Collieries — Killingworth, Seaham Nos. 1 and 2, West Wallsend.
<b>NEW ZEALAND: WELLINGTON DIVISION.</b> (Hon. Sec., Wellington.)	Friendly Society Lodges, Wellington, N.Z.

### Diary for the Month.

- Dec. 4.—N.S.W. Branch, B.M.A., Ethics Committee.  
Dec. 4.—Vict. Branch, B.M.A., Ballot Papers for Election of Member of Council Returned.  
Dec. 5.—Vict. Branch, B.M.A., Annual Meeting.  
Dec. 7.—Q. Branch, B.M.A., Annual Meeting.  
Dec. 11.—Tas. Branch, B.M.A., Council and Branch.  
Dec. 11.—N.S.W. Branch, B.M.A., Executive and Finance Committee.  
Dec. 12.—South Sydney Med. Assoc. (N.S.W.).  
Dec. 13.—Vict. Branch, B.M.A., Council.  
Dec. 14.—S. Aust. Branch, B.M.A., Council.  
Dec. 14.—N.S.W. Branch, B.M.A., Branch.  
Dec. 18.—N.S.W. Branch, B.M.A., Medical Politics Committee; Organization and Science Committee.  
Dec. 20.—City Medical Association (Sydney, N.S.W.).  
Dec. 21.—Q. Branch, B.M.A., Council.

### EDITORIAL NOTICES.

Manuscripts forwarded to the office of this Journal cannot under any circumstances be returned.

Original articles forwarded for publication are understood to be offered to *The Medical Journal of Australia* alone, unless the contrary be stated.

All communications should be addressed to "The Editor," *The Medical Journal of Australia*, B.M.A. Building, 30-34 Elizabeth Street, Sydney, New South Wales.



